The Builder.

VOL. XXXVII. No. 1888. SATURDAY, APRIL 12, 1879.

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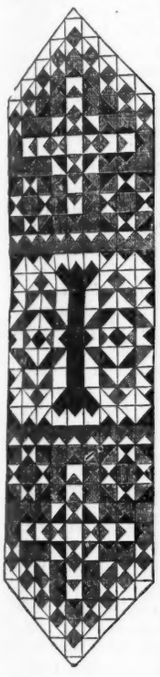


Sanitary Warnings from High Places.

IN the destructive course of the cholera through India, it was remarked by some observers that the pestilence seemed to come from below. Not only were the inmates of houses at the foot of a hill attacked sooner than those towards the summit, but the fowls and other small animals, naturally abiding on the surface of the ground, sickened and died some days before dangerous symptoms broke out in the human inhabitants. If this statement be thoroughly reliable, it is of no little value, both as affording a warning, and as indicating in what direction the sanitary engineer should look in his precautions against the danger intimated. Exhalation, in one word, is, at all events, one sign or cause of danger, in local and epidemic diseases, and the remedy against mischievous exhalation is, not only drainage, but proper regulation of the entire water *régime*. Baking ground, in some cases, has proved even more sickly than swamps.

It is not, however, from the lower levels, either physically or socially regarded, that the most serious warnings to provide against future mischief now come. The remark which has more than once been made in our columns of the mode in which that subtle and dangerous malady which now takes the form of diphtheria, and now that of enteric or typhoid fever, chooses its victims among the very flower of society, has received fresh illustration. In the past few weeks fatal blows have been struck in two royal houses, in that of the Prince Royal of Prussia and in that of the Duc de Montpensier. And the alarm thus caused is intensified by the recollection how many of those who could so ill be spared have been carried off within the last few years, from the palace and from the castle, by a disease which we profess to believe is preventible by the engineer.

It is to be hoped that the true lesson will be drawn from these repeated appearances of what we must regard as malarious diseases in the homes of luxury. It would not be unworthy of the Society of Arts to direct a special investigation to the subject. If we venture on a few hints, it is rather as indicating the line of inquiry that the public welfare seems to demand, than as at all anticipating the result of an inquiry of which the need has become very urgent.

Predisposition to attacks of this nature may prove to be either personal or local. It is not clear, but it may be suspected, that there is some element at work, in the present state of civilisation, which renders the more gently nurtured, or more highly cultured, members of society specially unfitted to resist malarious influences. Connected with this must be borne in mind the manner in which the external atmosphere is more and more kept out from our houses. Doors and windows close better, draughts are more carefully excluded, than of old. Appliances are introduced for artificially warming the passages and vestibules, the natural function of which places is to afford a graduated transition from the warm atmosphere of a chamber to the external temperature. Clothing is much more complex than was formerly the case. In the time of our grandfathers a man was called a puppy if he wore an overcoat. What would those hardy gentlemen have said to the "Ulsters" of the present day? or the sealskin jackets and coats? Human habit is so much modified by circumstances, that the adoption of all these safeguards against an occasional chill may have a direct tendency to lower the resisting power of the constitution. And there are well-known facts that square with this view. Such is the influence on the constitution of the prolonged heat of tropical or sub-tropical countries. Even in Italy, where the thermometer rarely rises above 96° Fahr. in the middle of the summer, this effect is more perceptible. Those who can fly to mountain heights or cool spots invariably do so for about six weeks in the summer; those who cannot do so (we now speak of foreigners resident in Italy), disregard the first hot season, and laugh to see the natives slowly slinking from shade to shade, and never moving without an umbrella,—truly so called, when used not against rain, but against sun. The second season, however, becomes more serious. The third still more so; and a succession of summers, even as far north as Naples, is a very severe trial to an Englishman or a German. The body seems to dry up, the hair to become like hay, and old age to advance with untimely speed. No one who has had experience of the matter will deny that this is the general rule. The inference is not unnatural that the greater comfort, as we regard it, at all events the more sustained heat, which we are steadily giving to our abodes, is really tending to lower our constitutional power of resistance, not only to the great tonic, cold, but to those influences against which that tonic has the prime function of strengthening the frame.

When we note, further, that it is so often in the palace and the noble mansion that the outburst of the fatal malady occurs, this view of the case is yet further supported. The first point, therefore, for the inquiry of the scientific physician is, how far do greater habits of luxury, avoidance of cold, late hours, gas, carriage exercise in lieu of walking or of riding, and luxury of food, sap and undermine the vigour of the individual, and thus, in an increasing ratio, the vigour of the race? And if this prove to be the case, is there no Lycurgus to be found to raise the cry of "Health before ease and luxury"?

The second point regards the sanitary condition of our houses themselves. This is a different thing from the effect of luxury on the frame. It may be possible, or at all events conceivable, for a great house to be so built, and so tended, that a given temperature, let us say 66° Fahrenheit, may be constantly maintained through vestibules, corridors, staircases, and rooms; and at the same time that the ventilation shall be such as to change the air with sufficient rapidity, and to prevent the entrance of any poisonous gas. But in our variable climate the cost of the provisions for this purpose would be great, and the necessity for constant supervision would demand attendants of a high degree of education to be detailed for this special service. As it is, warmth is too frequently secured at the cost of pure air. The products of the combustion of gas, and the minute quantities of gas (where this mode of lighting is allowed in sitting or sleeping room) that escape unburnt, either from the pipes, the fittings, or the burners, are constantly vitiating the atmosphere of the house. Our own experience is that plants will never thrive in a room in which gas is burnt. If such be the effect on the vegetable tissue, what must be the case with the more delicate tissue of the lungs? We know houses where sore throat is frequent, almost constant, during the winter, and from which we believe that it might be banished by cutting off the gas, and having the windows regularly opened in all weathers.

Then there is the great danger attendant on the water-closet system. We are not about to propose any Utopian remedy. We do not deny that in this system we have, all things considered, the best yet discovered for the removal of the *débris* of organic change from large cities. But it will not do to shut our eyes to the fact that the system is attended with great danger. The slightest irregularity,—stoppage, leakage, frost, want of water, too much water, incurs the risk of turning a fatal exhalation of sewer gas into the house. Sometimes this arises from external causes alone, quite beyond the control of the residents. An irruption of gas may occur in offensive quantities. This, horrid as it is, is far less dangerous than a more subtle and gradual escape. Sometimes it is the very effort to ventilate the sewer that provides a stream of fatal gas to dribble down an unused chimney, or to lurk under the eaves of the attic stories. Sometimes, and that more especially in large hotels, it is sheer neglect. We know one instance in one of these buildings, which it would not be proper to particularise, of this nature. A child, heir and hope of his family, was staying with his parents at this place for a day or two. The mother discovered the neglected state of one of the closets, to which the child had been taken, and the family left the house forthwith. It was too late; the seeds of the malady had been sown, and

diphtheria very soon carried off the only hope of his parents. We speak of one instance within our immediate circle of acquaintances, and within a very few months. How many deaths are due to the like cause? How many, for that matter, to this identical source of mischief?

In referring to this we may, it is true, be reverting to advice formerly given in our own pages. The story of sewer-gas poisoning is not new. But it is none the less important to bring the subject before our readers in its proper connexion. We are attempting to account for a very threatening phenomenon. It is one that has for some time been denounced, but that seems to be increasing in virulence, from year to year. The evil must be either essential, or accidental. It must spring either from the increased power of mischief, or from the decreased power of resistance. In our opinion it is due to the combined influences of both causes. Habits of luxury, or, if we may even not go so far as that, habits of delicacy, are, we fear, impairing the constitutions, especially of the richer classes. The provision for those habits is affecting the salubrity of our dwellings. That both these influences are to some extent, at work, we think is, undeniable. Is it not high time that the matter should be looked in the face?

With regard to the question of house ventilation, the scheme has recently been put forward of a large and lofty chimney, connected with a block of houses, which by its draught should sweep and purify the entire block. There is something very fascinating in this idea, especially to those who are practically aware of how well chemical works can be kept pure by a lofty chimney. It may be well to look, for a few minutes, at the leading facts that would determine the size and number of such chimneys. We lately gave a brief account of the highest chimney in the world, one of 468 ft. high, at the Port Dundas works, Glasgow. The circular area of the tube of this chimney, at the top, is under 88 square feet. This chimney was built with a taper, the propriety of which is questionable, as, in order to utilise the larger part of the diameter a higher velocity is requisite through the narrower part of the chimney, while the disposition of the air will be to lose velocity as it cools. But, taking the 88 ft. of area, and allowing a velocity of 33 ft. per second (which is equal to 22½ miles per hour, or that of a stiff gale) to be attained, 118,800 cubic feet of air would pass through the aperture per minute. As a check on that calculation we take from Mr. D. K. Clark's valuable "Manual of Rules, Tables, and Data for Mechanical Engineers" (p. 927), the maximum quantity of air discharged per minute by a Guibal fan, working at Staveley Colliery, of 30 ft. diameter and 10 ft. wide, which is 110,005 cubic feet per minute. To attain the speed of 33 ft. per second, a pressure of 15·5 lb. per square foot must be maintained. The quantity of atmospheric air required for the consumption of one ton of coal, of average quality, is 313,600 cubic feet; so that a chimney of the area indicated, provided such a draught could be maintained, would effect the consumption of a ton of coals in a little under three minutes, or 22 tons of coal per hour. Taking eighteen hours out of the twenty-four for the combustion, we obtain close upon 400 tons per day, or 146,000 tons of coal per annum. If we allow a ton of coal per unit of the population per annum, this would require from twenty-four to thirty such chimneys for the whole of London.

But when we come to look at the question of ventilation, for the purpose of respiration, it will at once be seen how inefficient this powerful draught would be to discharge the functions of our present wasteful and inconvenient chimneys. According to Mr. Bailey Denton, in his first lecture on sanitary engineering (p. 2), 23,000 cubic feet of ordinary air are required per individual per twenty-four hours in order to keep the vitiation of the air below 1 per 1,000, at which point impurity becomes perceptible to the nose. Allowing only eighteen hours to be spent within doors, either in bedrooms, houses, or offices, we shall find that the 824 million cubic feet passing through the hypothetical chimney in that time would only provide for the ventilation requisite for a little over 47,000 human beings. Three times as much ventilating power, therefore, is required for keeping the chambers of a house pure, as is requisite for maintaining combustion of coal at the allowance of one ton per inhabitant per annum. And no provision is made for the products of combustion of gas or other artificial lights.

We need not add together the two quantities; as the partially vitiated air would to a great extent serve for combustion. But all things considered, it would seem that a chimney possessing as high a power of draught as we have named, would be requisite for at least from every 33,000 to 40,000 of population, supposing the whole of the ventilating arrangements to be brought under proper control by its means. As to the details of these arrangements, we cannot at present find space for discussion. But it may be mentioned that from 400 ft. to 740 ft. per minute is the rate of ventilation which is effected in mines; the upcast pit having the former rate of draught, and the velocity in the several channels varying inversely as their areas. The point where the above considerations practically bear on our present subject is this. The removal of air from a house that is requisite to ensure a due ventilation for sanitary purposes is so much more considerable than the removal which is due to, and effected by, the combustion of the amount of fuel proportioned to the number of inhabitants in the dwelling, that special attention should be directed to the subject in all large houses. Chiefly is this the case in those houses, whether large or small, in which it is the object of the housekeeper to maintain a high, or a moderate but invariable, temperature, through all parts of the house, in the winter season. This can only be done, with safety, by warming the air as it enters; and the question is, whether either this or any other mode of keeping up the temperature of the vestibules and corridors is not a direct invitation to disease. We suggest that it is so, in two modes. First, that the resisting power of the frame is lowered by the maintenance of an invariable temperature. While persons remain within the house, the aëration of the blood and the animal vigour will be abated; and on going out the cold will be more keenly felt, and very possibly more injuriously felt, than if the passages had been cool. The other, and entirely independent, question, is that of the risk that there is in all highly-warmed houses of slighting the proper ventilation. The carbonic acid exhaled from the lungs is, of course, so much direct poison, unless removed. To this have to be added all other sources of impurity, products of combustion, gas resulting from the course of the organic functions, emanations from the pet birds or other animals, and, most dangerous of all, infiltration of sewer gas. A wholesome thorough draught is the only safeguard against this domestic malaria; and very few are the instances in which this is to be ensured without the utmost regularity and care as to freely-opened windows. Those who know what Belgian, German, and even French hotels are in this respect, will be likely to form the opinion that palaces and noble mansions may be made, and very frequently are made, far less safe and salubrious, especially for the young, than were the rude and draughty nooks in the halls and castles of our ancestors, or than our very modest cottages in the present day.

The New Patent Bill.—Messrs. W. P. Thompson & Co., patent solicitors, point out a few grave defects in detail which, uncorrected, may nullify all its advantages of longer duration of patents and of lessened stamp duties in provisional protection. It enacts that every invention shall be published *in extenso* before a patent is granted. The inventor has, therefore, to part with his secret before he knows whether he will be protected beyond the preliminary twelve months, and with a very great chance indeed of getting no patent at all. Any person after reading the specification can oppose a patent, and has the option of opposing before either the law officer, as at present, or before the Lord Chancellor, involving the applicant for letters patent, in the latter case, in the estimated expense of from 150*l.* to 1,000*l.* or more, only a very small portion of which cost (even if he gain the case) will the inventor be repaid in taxed costs. It will consequently lie in the power of a capitalist, with opposing interest, to stop a poor man from obtaining a patent altogether. The 50*l.* stamp at the end of the third year is retained as heretofore. In order to obviate the chance of dog-in-the-manger patents, of which there are and have been extremely few, and these of very little importance or inconvenience, the Bill obliges patentees to grant licences on such terms as the Lord Chancellor for the time being may consider fair. This involves worse evils than the one it is designed to rectify.

OLD LONDON AT SOUTH KENSINGTON.

WE gave, some time ago, a few remarks on the plans of old London which form a part, and only a small part, of the remarkable collection of illustrations belonging to Mr. Crace, and which were then just arranged in the galleries on the Queen's Gate side of the Exhibition rooms at Kensington. The collection has now for some time been open to the public, free of charge, but seems for some reason to have attracted very little notice, considering its remarkable and unusual interest.

The collection comprises more than 3,000 maps, engravings, and drawings, the maps, to the number of 367, being placed together in a separate room, and the others very systematically arranged on the walls and on screens in one of the larger galleries, commencing with general views of London, after which the illustrations relating to special localities or buildings are grouped together. The views commence with three fac-similes from illuminated MSS., two from copies of Matthew Paris in the British Museum and at Cambridge (1236), and one from a MS. in the British Museum, dated 1418. The first two are little more than symbolical representations, the first furnishing an illustration of the great importance then attached to the Tower, of which a rude kind of sketch is given with the title, in old French, "Le Chastel de Toure, l'Encree e la Clef de la riche Isle de Engleter." There is also a rude illustration of "La Iglise de Sct. Pol." The third drawing, framed with these, gives a most interesting view of the Tower, evidently intended as a faithful pictorial representation of it at that period, and probably in the main an accurate one, allowing for archaisms of perspective. Beyond it is seen London Bridge, and the race of the tide through the arches in a series of "rapids," for so many centuries a characteristic of Thames scenery, is carefully shown in the view. No. 372 is a drawing of unusual interest and artistic merit; it is a copy by Whittock of the well-known drawing by Antonio Van den Wyngaerde, about 1550 now in the Bodleian Library. This gives a view of London taken from the Surrey side of the river, and extending from Whitehall to Greenwich, where the palace built by Henry VIII., and called Placentia, makes the prominent object. This view was obviously intended as an accurate representation, and the fact of its being made by a Dutch draughtsman is strong presumption of its truthfulness, so that we may here see very precisely the appearance of London in the middle of the sixteenth century, the picturesque effect of London Bridge, and the gradual extension of the city in the Westminster direction. St. Paul's is shown with the spire; most of the views of the cathedral before the fire are subsequent to the demolition of the spire by lightning, and show the tower only. The drawing of this large panorama, 10 ft. in length, is superior to that of a good many of the subsequent views, some of which are fearful and wonderful. Among the eccentricities of this part of the collection are some views of London attached to equestrian portraits of James I. and Charles I., the City being seen under the body of the horse as a distant background. The next in point of interest is a large panoramic view by Hollar in 1647, and there is, further on, a pretty large French panoramic view, published by Jallot, of Paris, in 1678, in which the architectural characteristics of the principal buildings are given in a most amazing style, and the roofs which cap the four angle turrets of the Tower keep are represented as a kind of Oriental bulbous domes, a method of showing them which seems to have been accepted as correct, and imitated by several subsequent illustrators. The gateway of the bridge on the Surrey side is represented with quite a forest of pikes, bearing traitors' heads, on its roof. We next have a series of drawings representing "London on Fire" by English artists, and "London im Brand" by Dutch artists, who (as we noticed in speaking of the plans before) seem to have taken great interest in the catastrophe and to have had a great wish to have a hand in replanning the city. These drawings show the celebrated catastrophe from various points in a very striking manner, and in some cases seem to be the result of careful observation on the spot; others are doubtless more or less imaginary. The majority are panoramic; one exhibits "the south prospect of London as it lay in ruins after that dreadful fire in 1666," a view from South-

wark showing the distant effect of the heaps of burnt buildings: among the more detailed views is a very interesting and truthful-looking one engraved in 1811 from a picture of the period of the fire; and one very theatrical view by De Lontherbourg of the burning city seen under one of the arches of London Bridge; this is obviously a mere piece of scenic invention. Among the views published shortly after the fire is one (423) which has a special interest, not alluded to in the catalogue, in the fact that the distant view of St. Paul's, though very small in scale and badly sketched, obviously represents Wren's first design for the central feature, with a much flatter cupola and high spire-like lantern. As the view is of the date of 1670, only four years after the fire, the design of the cathedral must of course have been obtained from Wren, or from his drawings through other hands. The importance attached to the new churches is obvious from such views as those numbered 437 and 438, dated respectively 1720 and 1732, in which the spires and towers of the new churches are shown on an absurdly exaggerated scale in relation to the whole.

Under the heading, "General Views—1740 to 1840," we find a very fine view on a large scale (440), bearing the following title, "A long View of London and Westminster, taken from Mr. Scheve's Sugar-house, opposite to York House, from Mr. Watson's Summer-house, opposite to Somerset House, from Mr. Everard's Summer-house, opposite St. Bride's Church, and from St. Mary Overy's Church, Southwark." The date is 1749; the engraving is a fine one in point of effect, besides giving the impression of being carefully and correctly executed. A view the reverse way, showing the southern bank (448), and dated 1807, appears to be taken from Northumberland House Garden, a part of which forms the foreground. There are in this part of the collection two very good water-colour views, one representing London from Westminster Bridge to the Adelphi, and the other from St. Paul's to the Custom House (450-1), taken in 1837 by Col. Yates, whose name appears several times in the exhibition, and who seems to have been a very accomplished and painstaking topographical artist.

We now come to "Views on the Thames," representing special points more in detail. Among the set headed "Millbank," is a view by Varley (458), "From Millbank, near the Horseferry-road, looking towards Lambeth Palace," dated 1816, and which is valuable as showing the origin of the names which are still preserved in streets and lanes, the aspect of which is now so completely out of keeping with the old names. We have here an old timber mill standing in open waste ground adjoining a sandy lane, little more than a cart-track. The view numbered 475, date 1841, is taken from very nearly the same place, and shows Millbank as a walled wharf. The Westminster Palace drawings are only of moderate interest, but those included under the head of "Westminster Bridge" are of much excellence and value. The first in the list (494) is dated 1751, and bears the characteristic title "An Exact Prospect of the magnificent Stone Bridge at Westminster, with a View of the Abbey, Lambeth Palace, and other Buildings, &c., up the River Thames." The next is a drawing by Canaletti, showing "The Centre Arch of Westminster Bridge when Building." Among a good many others which we have not space to mention, there is one of the date of 1819 (514), a drawing marked as by Gendall, engraved by Hewell, which gives a remarkably good view of the old red-roofed houses which formerly stood where the present Westminster Palace now stands. Next comes a Whitehall series, headed by an engraving by Hollar, representing "Palatium Regis prope Londinum, vulgo Whitehall," followed by a series representing various designs for fire-works on the river at Whitehall, which would seem to have been at one time a recognised way of doing honour to the sovereign. One of these (534) was the design of Sir William Thornhill, and is thus described with a touch of quaint loyalty,—"The exact draught of the firework that was performed on the River Thames, July 7th, 1713, being the thanksgiving day for the peace obtained by the best of queens." A York-gate series follows, containing some very good drawings, among others a view of York-gate from Buckingham-terrace, just on the west hand of the foot of Buckingham-street; a pretty drawing, showing quite a rural riverside walk with an avenue of trees, and children and nursemaids promenading: date 1784. "The Tower of York Buildings Waterworks, showing the Construction," is the subject of another print; the feature in question being the large timber tower which appears in so many old views in this part of London, almost on the site of the Charing-cross Station. "A View of London, taken on the Thames near York Stairs" (546), shows the Adelphi and Somerset House as the latter appeared before the construction of Waterloo Bridge. This latter forms the subject of several illustrations, the first one being a coloured print showing the scene at the opening of the bridge in 1817, on the 18th of June, taken "from the top of Holyland's Hotel, Salisbury Wharf," and which shows that there was an effort to make the ceremony worthy of the event which the name of the structure commemorated.

Old and new Somerset House are respectively illustrated by a considerable number of drawings and engravings, among which Paul Sandby's fine water-colour drawing of old Somerset House (589) is one of the best, and one of the most interesting is a view of the inner court of old Somerset House, at the time it was being taken down (593); this is dated 1776, and shows part of the new building as it now is, with the old one in course of demolition. Among the new Somerset House illustrations is a fine water-colour drawing by Thos. Malton (1796), giving a good idea of the aspect of the building from the river before the existence of Waterloo Bridge. We pass a few illustrations not of special interest of the Temple, and come to a considerable number connected with Blackfriars Bridge; the first of which is a very fine engraving by Piranesi, from a drawing by "Robert Mylne, architect," showing one of the arches in course of construction, with a careful representation of the centering; and there are several other illustrations of the construction of the bridge, as well as of this and Southwark Bridge treated from the picturesque point of view. A view of Nelson's funeral procession by water from Greenwich to Whitehall is a very interesting reminiscence of a great national ceremony, though a bad and incorrect drawing as far as topography and buildings are concerned. The drawings illustrating old and new London Bridge are of great value and interest, the more so, of course, on account of the ancient and intimate connexion of this bridge with the history of the city. The old bridge, with its masses of houses overhanging the water, was the pride of the Londoner of the period. We have first a view drawn in Elizabeth's time, but not published till 1624; this gives a very complete idea of the bridge as it then was, and a little relic of household ways among its inhabitants, as a bucket at the end of a cord is let down from one of the top windows to draw up water from the river, which then was, we may suppose, water, and not sewage. It may be noted that in nearly all these old views the name of the river is engraved upon its surface, usually in Latin; in this case the draughtsman has been even more precise, lettering it "Tame-Isis Fluvius, vulgo Temms." The next engraving gives elevations (rather than views) of the east and west sides of the bridge, in 1710, with an historical account of the various London bridges, and a couplet claiming for it the honour of being the greatest wonder of the world. "A View of London Bridge before the late Alterations" (651), from a picture by Samuel Scott in 1757, is a capital spirited engraving, with much freshness and life in the treatment of the water. The alterations referred to consisted in removing the houses and making a wide arch in the centre for the accommodation of the river traffic. While this was being carried out in 1758, a temporary wooden bridgeway was erected over the part that was undergoing alteration, which it seems took fire and was burned completely. We have next the drawings of old London Bridge without the houses; the engraving 655 shows that after they were removed the cutwater piers, which in the old views are carried the full height of the bridge and form the base for the houses, were taken down nearly to high-water level, and a new balustrade and cantilever cornice in Classic style were placed at the road level. In this engraving the wide centre arch, formed by the removal of one of the piers, is shown; but there is another point of considerable interest in this illustration, as regards the history of the bridge. The slightly projecting piers which are left where the cutwater piers formerly were, are ornamented with Gothic tracery, two panels and a mullion, with a quatrefoil in the head; they are badly drawn and do not give a good representation of Gothic work, but it is impossible to suppose that those who altered the bridge in 1758, and added the cantilever cornice, would at the same time have thought of making a Gothic architectural decoration between the arches in keeping with their character. And the only alternative seems to be that this was the original aspect of the Mediæval bridge when first built, and that the cutwaters were carried up subsequently in order to support the houses afterwards built on the bridge, and when they were removed, the old design was again uncovered and perhaps more or less repaired and reinstated. Two excellent water-colour drawings by Major Yates (the same artist whose name we see as Colonel Yates elsewhere) show the old bridge, as further altered by the widening of other arches in order to relieve the navigation till the new bridge was built; these are dated 1827 and 1830, and a drawing by W. Knight, 1827, shows this work in process in a more engineering and less picturesque type of drawing. Of the same date and by the same draughtsman is a fine drawing of the first arch of the new bridge in process of erection; there are also various drawings showing the process of the demolition of old London Bridge; and a good many illustrations of the new one, showing its construction, the ceremony of opening it (which seems to have been a sort of "field of the cloth of gold" over again), and views of it from various points. These three sets of illustrations form together a most interesting group of constructive and pictorial records of three of the phases of our metropolitan bridge: what will be its next phase? "A question to be asked."

We can only mention here a set of views of the Tower, which are but of partial interest, because the real history of the Tower had virtually closed before the period of illustration set in; views of Billingsgate, and the Custom House, and of St. Katherine's Docks, with sketches of some of the queer, tumble-down old houses which were disestablished to make way for the docks. We may just allude to the illustrations, so interesting to the historian of manners, of the two frost fairs held on the Thames in 1683 and 1814; the frost in the latter year having been a part of the great visitation of cold which had a year or two before destroyed the French army; in reference to this, one booth or tent in one of the drawings bears the sign, "The City of Moscow," while another exhibits the comprehensive motto, at once patriotic and businesslike, "Wellington for ever,—good Ale." We have more to say in regard to particular buildings, some altered and some gone, of which so many are illustrated in the collection.

ART CLUBS.

IT is quite certain that the increasing interest in art will cause art clubs slowly to multiply, and we look forward to the time when every provincial town of any size will, like Liverpool, possess its art club. Such clubs are more likely to multiply in the provinces than in London, for they serve two different purposes, to unite those who are interested in art, and to fill a social gap which does not exist at all in London, where the ordinary social clubs are so numerous. That, from every point of view, the increase of these clubs is very desirable there can, we think, be no question at all, for, regarded from the very lowest point of view, what can be more praiseworthy than that men should unite to discuss artistic matters, or even only to eat their dinners amidst a conversation on painting and sculpture rather than upon the most likely horse to win the Derby, or who was the greatest belle at the last assembly ball? Perhaps the idea of a score of gentlemen in a provincial town, seated round a club table discussing with their viands art for art's sake, or the latest work of Mr. Burne Jones, is somewhat an ideal picture, not very likely to be realised; but there can be no doubt, considering the matter seriously, that when the majority of or all the company have one object, at any rate, in which they take a common interest, that object is most likely, if not to be the basis of, yet strongly to tinge their thoughts and conversation. Put a dozen lawyers, or a dozen clergymen, or a dozen men with strong political interests, round a table, and the great mass of conversation will be upon legal, clerical, or political subjects. Put a dozen lovers of art together, and though they may have pitched battles over current theories, yet art will after all be the

staple dish of the intellectual entertainment. But it is worth while to consider briefly what it is that should give art clubs their *raison d'être*. The first principle which it seems to us should be borne in mind by those who may have to do with art clubs is that they should be perfectly catholic in their aims and system. There should be no narrowness in their composition, and all crotchets should be put down with a strong hand. That is to say, they should consist not only of amateurs who may be able to handle a brush themselves, to the exclusion of picture collectors simply, but of artists, of persons who gather together pictures, and of those who take a true interest in art, even if they cannot actually use the pencil themselves, or if they have not incomes which will allow them to indulge in the purchase of works of art. There is a good deal of danger indeed that this class, which often has in it most thorough lovers of art, may be excluded by a combination of the technical and the collecting elements. And an art club, to justify its name, at any rate, in provincial towns, should contain every class of person animated with an enthusiasm for art. It follows, therefore, to deduce one practical consequence from this argument, that the subscription should be always as moderate as possible.

But when we say that art clubs should embrace all who are interested in art, it should be borne in mind that painters and sculptors are not the only exponents of art. Thus art clubs should take care to encourage architecture and architects, and if they do this, we conceive that they will be fulfilling functions of the utmost possible utility. It is too much the case that in provincial towns some people do not consider architects as belonging to the great fellowship of artists; they fancy that, like Mr. Pecksniff, they are persons who, chiefly by the hands of clerks, copy certain designs, which they keep in their drawers ready for display when they are asked for plans, and whose occupation is wholly mechanical. It is too true, we are afraid, that the facts are not always such as to correct this impression. But be that as it may, nothing can be more beneficial, both for architects and the public, or amateurs in other subjects, than that architects should take their place in any provincial art club that exists, so long as they come up to the other requirements of the club. Art, of course, also contains art of a dramatic kind, but we are afraid that in its manner of fulfilment dramatic art does not at the present day join hands sufficiently with the arts of painting, sculpture, and architecture as always to give lovers of the stage a right to join with ordinary lovers of art, in its narrower sense, in a common social union. When the art club is established on a wide basis, it is obvious that in some places it may be apt to degenerate into a social fellowship simply, to the neglect of the severer forms in which an art club should develop itself; or, on the other hand, in other places it may lose those social traits which are both pleasant and attractive, and become too much of a merely artistic society whose members become no more than organisers of art exhibitions or lectures. For there can be no doubt that the intelligent discussion of artistic subjects, the comparing of notes of tours in search of the picturesque, and the hundred and one points which may glance out under the pleasant glow of social intercourse, may largely disseminate an intelligent love of art. For nothing is more suggestive than the discussion of points with a man equally interested in the main object of the conversation, but who regards it from a different standpoint, and in half an hour's conversation with a man who has given himself up to some particular phase of art, more may be learnt than in poring for a whole day over a volume of criticism from the accomplished pen of some artistic critic. But, again, to be sociable is not everything; for an art club should seek to disseminate the knowledge of art, and to exercise a controlling influence over artistic matters which may come upon the *tapis* within the range of its membership. Thus, it should be the organiser of exhibitions; it should seek to cultivate local talent; it should collect a first-class library, embracing all sides of the literature of art; and it should act, if possible, as the Mentor of local bodies who may have been willing or unwilling to solve some artistic problem. The Liverpool Art Club has, in this matter of exhibitions, shown a judgment worthy of all praise, and to be followed by other art clubs when they come into existence; for it is really only by local exhibitions, and local exhibitions not of a promiscuous and essentially popular kind, but directed with knowledge and critical acumen, that provincial populations can ever really be properly educated in art matters as they should be. It is unnecessary on this point to say more. But, again, as we all know, it is often difficult for a young and rising artist to obtain that popular appreciation without which he may starve. Thus, it is at once possible and right that local art clubs should do what they can to encourage and to assist rising talent,—as again, by occasionally having small exhibitions for local artists alone, and by many other means which we cannot go into here. Then, as regards art libraries, how many men in a provincial town before going for a holiday on the Continent, or after returning from it, would be glad to consult works connected with artistic matters. Such a book as Mrs. Heaton's "Life of Albrecht Dürer," for example,—and we merely take this as the first which comes into our mind,—should be read by any one who has the most skin-deep love of art who may be about to visit the grand old tower of Nuremberg.

> "Here where art was still religion, with a simple reverent heart,
> Lived and laboured Albrecht Dürer, the Evangelist of art."

But how many in a provincial town can obtain such a book unless they possess a thorough library of artistic literature, and who expects to find books of reference in artistic matters at the circulating library which dispenses the intellectual food to the inhabitants of the city? Of course, in towns such as Birmingham and Manchester, a free library to some extent answers this latter object. But it is a very different matter to possess books of artistic worth in common with a number of other persons as partly one's own property, ready for reference at any moment, to going to a large library, even so admirable a one as is to be found in many large English towns. Therefore, it comes to this,—that there is clearly room for art clubs to exercise a most useful influence, social and artistic, in the larger provincial towns in England in those ways which we have pointed out, and also in the obvious way of assisting public bodies in fulfilling some of their duties. If, for example, a statue is to be erected to some deceased worthy of public or local fame, and an art club exists in the city in question, it should be consulted as to the choice of site or of the sculptor, either directly or by means of some of its leading members. This, again, is a point into which we cannot enter at length; but, again, it is one which is obviously in favour of the growth of art clubs in the provinces. That they will increase we have no doubt at all, and therefore it is to be hoped that they will be founded on a broad basis, and will keep plainly in view their artistic and social aims. There are many towns in England now quite ripe for these societies.

THE SLATE QUARRIES OF ANGERS.

THESE are among the most ancient slate quarries in Europe, and still their yield is incessant, and appears to be illimitable. But the legends associated with them are of no practical interest at the present day, and it is not until the beginning of the fifteenth century that they emerge into history. They were then celebrated for supplying a material which beautified the roofs of nearly all the more important public edifices in France, and gave a tone, indeed, to the national architecture. The space spread over by these works is of enormous extent, and the difficulty of reaching the "blue rock," where fresh openings have to be made is in proportion, huge superincumbent masses of materials possessing no value whatever in commerce having to be removed. The excavation thus opened is, in parts, nearly 1,000 ft. deep, with ascents and descents by means of "giants' staircases" hewn in the walls, as well as by scaffoldings, which notwithstanding their solidity, seem frail, in consequence of their height. The first process, upon opening a quarry, is the erection of a wedge-shaped wall, very thick, whence a descent slopes down, by regular stages, until a point is reached where it must become perpendicular. Between the wall and this point is thrown out a timber framework, at the outer extremity of which is the apparatus for hoisting, regulated, of course, in these days, by steam power. In these stupendous scaffoldings, any other material than wood is rarely employed,—lightness and flexibility, combined with strength, being the objects aimed at; and experience has proved, in this instance, that heavy ironwork, or masonry, press perilously upon the only foundations that can be found. Even the machinery is placed as far as possible from the mouth of the pit, as it may be termed, so that a great deal of the labour seems to be almost automatically done, by pulleys working over wheels, sometimes not less than 30 ft. in diameter. One set of engines faces another, east and west, at about a hundred yards' distance, and, of course, both must be employed, for a long time, and at great cost, before the slate itself is reached. The next process is to blast, east and west, at either end of the quarry, a ditch, three or four yards deep, supplemented by others, of similar capacity, running north and south. When these have been finished off by the pick-axe, there remains a vast block to be attacked, from four sides. Horizontal holes are pierced in this, with vertical holes at their extremities, and mass after mass is dislodged by means of gunpowder. Such is the nature of this most useful rock, and such the skill of the artificers engaged, that, notwithstanding the incessant explosions, a record of ten years shows only one man killed, and six wounded, in consequence of them. The blocks thus detached are now dealt with by hand, with heavy hammers and hard-pointed spikes, and one by one, with marvellous rapidity, the slabs or "flakes" fall outwards, in regular heaps, until a sufficient number have been accumulated for fetching away by the tumbrils which have replaced the primitive hods. Arrived at a particular spot, they are loaded into large oblong boxes, and drawn up by cranes to their second destination,—a small but solid platform, moving on rails. These processes, of course, are varied when, instead of working in "the open," the quarrymen have to excavate their way through subterranean passages and chambers, constituting, in fact, one stage or floor of quarries over another. The hardness of the substance lessens the danger of these underground workings, and, from the same cause, floodings are extremely rare. In this latter class of work, operations are commenced by sinking shafts, moderately broad and deep, and, from these, carrying forward four corridors, answering to the trenches above, at right angles with each other. The same processes are repeated, but the quantities of gunpowder used are lessened, lest some "faults" in the superincumbent mass should render it possible for an explosion to bring it down. It is a happy circumstance connected with a slate quarry that it is darkened by no such terrors as those which belong to the coal-mine; the galleries are illuminated by gas, and every quarryman, working underground, carries an uncovered light in his hat. There are, moreover, no mephitic or suffocating exhalations of any kind.

In excavating these subterranean quarries, the plan is to hew out parallel, but oblique series, of square chambers, with a breadth of rock between them, nearly equal to that which is hewn or blasted away. In a diagram, therefore, they present the appearance of colossal staircases, reared one over another, all perfectly symmetrical and uniform in size. This, however, is a peculiarity of the works at Angers. It is to be remarked that the excavators employed below constitute a separate and superior class from those employed above, or in the light of day. They require, for any one ambitious of entering their body, a considerable novitiate, with the payment of a fee. A candidate having been accepted, appears before his future comrades, with sundry fragments of felt tied with string about his legs, and there is forthwith a generous consumption of white wine, for which the proprietors pay. Formerly, these exactions were mischievously multiplied, so that the young apprentice was fined, so to speak, on every grand occasion of life, from the first appearance of a beard upon his chin to the celebration of his marriage. Ultimately, he enters one of the "societies," consisting of about twenty men each, which deal in the daily produce of their hands with the representatives of the company above. A distribution of profits, however, takes place, as a rule, only once in six months, and the earnings, throughout the year, may be said to average rather less than 2s. 6d. per day. Such classes of labourers as are not recognised as genuine quarrymen, but only as their assistants, receive daily wages to the extent of nearly 2s., though there is a distinct difference between their summer and their winter earnings. They used to be called "hodmen," but, as already suggested,

this part of their toil is now performed by means of machinery. Nevertheless, it is found impossible, for purposes of traction, to dispense with horses altogether, and a considerable proportion of the tumbrils are drawn by powerful Anjou horses, driven by children clad in goatskin and wearing enormous leathern hats. Arrived at the summit, the slate blocks are piled under shelter of slanting straw-fences, thick and strong, where the "splitter" sits, in all seasons, almost completely exposed to the weather. He first divides the block, next he splits the masses thus separated, into rough slates; his tools are a heavy steel chisel, and a huge wooden mallet; the dexterity required is that of seeing, instantly, where the slab will most easily separate, and also that of judging whether the quality is such as will yield large surfaces—which are proportionately paid for—or only the smaller kinds, for ordinary use. Other implements and other processes, of course, are brought to bear, but their recapitulation would necessitate details of too minute technicality. The "great Angevine slate" is regarded by many as the finest in the world, even in comparison with the Welsh and Flemish; yet these are mere traditionary distinctions, and it is to be noted as somewhat remarkable, that the only engine-wrought slates brought from Angers are of a quality styled, on the spot, "English"; it is one which will yield to neither the slater's edging-tool nor to his plane. Counted, measured, examined as to quality, the slates are stacked in "thousands,"—a thousand and forty to each,—and despatched to the market for the roofing of any building whatsoever throughout France, from a farm-house to a town-hall, and two hundred millions of "leaves" a year are computed to be produced by the great quarries of Angers. To meet the ever-increasing demand, a manufactory of metallic rope has been established in the neighbourhood, while it is in prospect, for the future, to erect steam saw-mills to supersede, in some, at any rate, of the processes, handwork, especially in the production of billiard-slabs, of which, with all their appliances, the famous works of St. Leonard, close to the quarries, can turn forth, in perfection, no more than three a day. In France, slate takes the place of marble in many respects; the flooring of baths and dairies, numerous architectural forms, clock-cases, garden-seats, and tables, caskets, mangers, and so forth; and it is now proposed to utilise it in the shape of railway-sleepers, while in the reconstruction of the Palace of the Louvre it has been largely introduced.

THE ADORNMENT OF CITIES.

It is worthy of note that in two such active art-centres as Paris and London, two artists as eminent as Mr. E. M. Barry and M. Viollet-le-Duc should be attracting the attention of the artistic public by the expression of their well-considered views. It is a coincidence of opinion not a little noticeable that almost at the same time Mr. Barry was remarking on the encouragement afforded to the arts in the Middle Ages by the popular power, and stating how natural it was "that democratic communities, ruling by and for the people, should witness with satisfaction the employment of public funds for purposes which aim at giving pleasure to the greatest number," and referring to the large sum spent by the French on their "Budget des Beaux Arts," M. Viollet-le-Duc, in a valuable report, had drawn the public attention to the necessity for a more strict employment of a portion of this budget in the direction of giving the greatest "pleasure to the greatest number."

Particularly on the adornment of our cities by architecture, by statuary, by monuments recalling local history and traditions, M. Viollet-le-Duc expresses warmly his opinion, an opinion which should be studied as closely by English municipal bodies as by those of France.

As an artist whose competence is well known to all, M. Viollet-le-Duc in his report has carried out the mission committed to him for consideration with an independence and a broadness of views which have justly met with universal admiration; should, indeed, the suggestions of the eminent architect be carried out, a complete revolution in the system of municipal fine art administration cannot fail to take place, and under the new president of the Special Fine Arts Committee, M. Castagnary (an art critic who has long been connected with the *Siècle*), there is every possibility of M. Viollet-le-Duc being energetically supported.

As equally impressed as Mr. Barry as to the increased and increasing power of the people over their own affairs which all modern history records (a sentiment which from the walls of the Academy sounds strange), M. Viollet-le-Duc establishes, by a series of plausible and undeniable arguments, that only a jury or commission, elected by the ratepayers, should have a right to pronounce in the choice of those works of art, and the artists to carry them out, intended for the embellishment of the capital; such a commission would, in M. Viollet-le-Duc's opinion, have a more authentic and regular authority than the commission, chosen by a majority of the members of the Institute, of a number of personages whose preferences and exclusive bias are too well known.

A point of no especial interest to English readers, but which cannot fail to rouse some excited discussion in France, was the reference of M. Viollet-le-Duc to the delicate point of the colossal statue of the Republic about to be erected on the Place du Château d'Eau, for which monument M. Viollet-le-Duc does not hesitate to claim that the figure should be in possession of all its attributes: conspicuous among these, the cap of Liberty,—an emblem which M. Viollet-le-Duc claims, with much show of reason, is no more soiled by historical associations than are the crown or the cross, under guise of which such cruel massacres and martyrdom have been enacted.

To analyse exhaustively the contents of M. Viollet-le-Duc's remarkable report would be to enter with him into the earliest manifestations of art under all its forms in Paris,—a city which, according to his words, still awaits an art which may be considered popular: ever since the Renaissance the fine-arts have become aristocratic, and seem to have only sought patronage and favour from those in power, the rich, and the ennobled.

M. Viollet-le-Duc would further demand special attention to be given to the lamentable "nudity of the squares and public promenades of Paris," against which he eloquently protests in the name of the interests of local history, rich in suggestive ideas and biographical traditions of personages "whose memory it is the duty of the present and the future to venerate."

The vestry-halls and schools, in the opinion of M. Viollet-le-Duc, suggest themselves naturally as edifices eminently suited for decoration,—not alone in the interest of public pleasure, but of popular instruction. "Each parish (and this is not one of the least attractions that a city offers) possesses its peculiar physiognomy owing to the industries of which it forms the centre, or by the nature of its inhabitants or its history. Are there not a thousand interesting and instructive incidents in each, suitable to furnish suggestions to the artists employed by the municipality to adorn their city?

In every town each neighbourhood is able to contribute its quota of historical and biographical memories, its traditions of honourable struggles and victories to make up the history of the nation; in the public walks might be reproduced the more striking incidents, while what would form a more interesting addition than that the vestibules and staircases of the municipal buildings should be adorned with portraits and with views of disappearing monuments and edifices of the parish or the neighbourhood?

Somewhat in opposition to the opinion expressed not long since by the new P.R.A. in unison with Mr. Charles Barry, M. Viollet-le-Duc thinks that the artistic works executed for the municipality should be submitted to competition, the only principle which it appears to him should be carried out in commissions of importance.

It is a pity that this report, to the instructive nature of which, and its warm and eloquent language, we have done but small justice, should engender bad feeling. With some it will raise a smile, with others a tone of irony; but one or other (we speak of France) it cannot fail to do in a society where, as a leading French journal not long since remarked, "academic tutelage is the supreme consecration of talent and glory.

Should, however, the Paris municipality allow itself to follow the directions of so able a leader as M. Viollet-le-Duc, it will before long rejoice at the successful results of his initiative.

Soon, to quote the words of the eminent artist, it will have gathered round it a pleiad of independent artists, whose work will prove that it has acted wisely in abandoning old official traditions, and in disposing of the resources at its command on its own responsibility.

It is scarcely at such a period of crisis as that through which we in England are passing that our public can be expected to approach in the proper state of mind the discussion of the embellishment of our cities, but that a proper understanding should exist on the matter is as necessary in England as in France.

Among all our heavy rates and taxes, we have never been called upon to contribute as largely for the adornment of London as our neighbours the French, for Paris; indeed, there, provincial tax-payers have more than once complained of the injustice of their having to supply the metropolis with funds to lay out in adornments which they can never hope to see. The world has, however, now learnt that not only has great taste been exercised, but that shrewd business tact has been shown by the French in the employment of their well-gathered capital.

When M. Viollet-le-Duc complains of the nudity of the squares and public walks of Paris, what, we should like to know, would that eminent critic have to say with regard to London, where statues and other memorials of famous inhabitants,—what a list any one neighbourhood of London could furnish!—are rarely, if ever, erected, except by special and public subscriptions.

Among the many valuable remarks made by Mr. Barry, in the third of his interesting Royal Academy lectures of this year, one at least cannot be too often repeated,—When a public feeling for art is weak, the wealth of a nation is diverted rather to selfish gratification than to the public gain. . . . . With us, artistic taste has been more a matter of individual education and culture in the case of the few, while it has been neglected as an element of national prosperity. It has not been so elsewhere. Art has been cultivated by our neighbours, the French, not only from inborn taste, but also from calculated policy. We are now complaining of foreign rivalry of trade, and calling out for technical education. Perhaps it may at length dawn upon some of our rulers that an educated national taste may even be a matter of commercial importance.

May not those who stand a little higher than "the British workman" take to heart the words of Prince Leopold, who has so eloquently emphasised the importance of more thought in the work than we all do? And is not Mr. *Punch's* serious squeak too true?—

> "Many a gift,—
> Intelligence, taste, temperance, and thrift,
> Deftness, adaptability,—is found
> Riper on foreign than on English ground."

The British workman may at least take to heart the advice,—

> "Stint bounce and beer; face the new time's new ends,
> And look abroad for lessons and for friends."

NORTHERN GLASS MANUFACTURE.

One of the oldest industries of the North of England is that of the glass manufacture; and, excepting the mineral and chemical trades, it is one of the most extensive. With the early history of the trade, the North is intimately connected and honourably associated, and with its development it is as much so, for ordinary glass for window purposes traces its rise back to the monasteries on the rivers Wear and Tyne; and Bede, the ecclesiastical historian, states that a contemporary of his, the Abbot Benedict, sent for "artists beyond the seas to glaze the monastery at Wearmouth." At Shields, at Sunderland, and at Newcastle-upon-Tyne, the manufacture took root, and flourished. In South Shields the excise returns showed that down to the period of the continuance of the excise duty there was a larger manufacture of plate glass than in any other town in the kingdom; Sunderland is the birthplace of rolled plate-glass, and the same town claimed to make one-fourth of the sheet-glass produced in the country; and the manufacture of flint glass, of stained glass, and of glass bottles is very large in the district between the rivers Tyne and Tees. But it is in recent days that the glass manufacture has known its greatest changes, and it is to these days that we may more generally address ourselves.

Glancing first at the glass bottle trade in the North, it may be said that it dates back for

nearly two centuries on the Tyne, and that the neighbourhood of that river was deemed especially adapted to the manufacture, fuel being very cheap, and a fluvial deposit long used in the manufacture abounding. More simple materials were substituted, and the industry spread, and now, not only on the Tyne and the Wear, but in Stockton and Hartlepool, bottle-houses have been commenced. In 1862, there were in the North no fewer than 47 bottle-houses, and their produce yearly was about 4,230,000 dozen bottles; there was an extension of the producing capacity in successive years, and in 1873 there were fifty-three houses in full work, employing about 2,000 persons, and having an output of nearly 12,000,000 dozens of bottles yearly. Since that date the trade has known dulness, which has been so generic in the North, and now it is estimated that house after house has been closed, until little more than one-half of those in operation five years ago are now at work, whilst the number of workmen and the production are shorn in similar proportion. The demand has fallen off, both at home and abroad,—the consumption of certain kinds of wine and bottled beer having apparently declined; but there is reason to suppose that the lowest limit has been nearly reached, and that there will be, as a consequence, an early accession of activity into this branch of the glass manufacture of the North. On the Tees and at Hartlepool, where this is the chief branch of the glass manufacture, the effect has been felt with some severity, but with the stoppage of the increase of stocks in hand, it is to be hoped that there is the dawn of a better day for the localities. At the same time, it is to be noticed that not only has there been a closing of a few of the bottle houses, but there has also been to some considerable extent an accumulation of stocks which will need time and better demand to clear out.

In regard to flint-glass, the manufacture in the North is first ascribed to Sir Robert Mansell, who established works for its production in Newcastle about 1616; but the manufacture has declined from its ancient importance, and the production on the Tyne and the Wear, when last assessed by a competent authority, was put at about ten million pounds weight yearly, and the wholesale value was stated at 200,000*l*. Both this and the allied industry of sheet-glass (the latter of which was introduced as a manufacture into this country by Mr. Chance and Mr. Hartley, of Sunderland) have not progressed at the same rate as some other branches of the industry. The sheet-glass manufactories in the North are few in number, but the extent of the manufacture of one or two of them is great, the production of two some years ago being estimated at 50,000*l*. yearly in value.

In regard to plate-glass, the district has attained some eminence, "blown plate-glass" having been made for at least two centuries in South Shields, whilst rolled plate-glass was first produced at the works of Messrs. Hartley, at Sunderland, where it attains its greatest dimensions as a manufacture. Of other kinds of glass made in the North, the stained only need be named, the manufactory of Mr. Wailes, in Newcastle, having attained eminence. Passing from these rough gleanings of fact from many sources, it may be said that there has been in the past a very considerable amount of evil results in the glass manufacture from the combinations of workmen, one branch of the industry having been practically driven from one of its centres by the efforts of the unions; but at the present time the glass trade as a whole is suffering more from the effects of the commercial depression than from any other cause. In some parts of the North there is an almost absolute cessation of building operations, and this very naturally affects, to a large extent, glass manufacture. There are other allied causes of depression; and failing to find a demand for bottles, for instance, the manufacturers made largely for stock, and as demand has continued to fall stocks have risen, until it is found that a temporarily-restricted production is inevitable. This, then, is the present position of the glass manufacture in the North, in common with many other Northern industries. It is evident that there must be a patient waiting for a recovery from the present prostration of the trade, but with this there should be no doubt as to the future of this special industry in the North. It has at its doors unlimited quantities of many of the raw materials, and its vast seaboard and navigable rivers give to it facility not only for cheaply obtaining full supplies of other materials, but also of placing the product on the great highway of commerce without cost. Its historic fame in the manufacture is of use to it, and the skill of its manufacturers gives to it great advantage. Moreover, the area of the consumption of glass in the North is widening, and though it has to compete with foreign manufacturers, there can be no doubt that, with a united effort on the part of the employers and those they employ, the trade might enter into a fresh lease of prosperous trade. This is one of the chief requirements of the glass manufacture, for the reverse has been one of the greatest checks to the prosperity of the trade in the past. With unlimited facilities of manufacture, with a wide field for distribution of the manufactured article, there should not be the possibility which prevails of successful foreign competition. That this is known is a fact too patent to the trade, and to overcome it there is needed less of the friction which is given too often by the unions, the results of which are seen in the closed "houses" and smokeless cones on some of our northern rivers. The cost of production must be brought down to the lowest possible limit, and new markets will be found if with the lower prices resultant there is also an attempt to improve the product. The bagpiper of Bujalance, according to Longfellow's "Student," asked a "maravedi for playing, and ten for leaving off," and in like manner the effects of the disastrous policy so long pursued in the glass trade linger long after the policy itself may be altered. But, with greater unity of effort, the future may show better results than the present.

TREASURES OF THE HERALDS' COLLEGE.

THE building in Doctors'-commons which serves as a home for the heralds who form the College of Arms, has been so often described that we need not repeat its details here. But a few notes on its chief contents may not be out of place.

First and foremost, Garter King of Arms and the colleagues who form his "Chapter," are in possession of one of the noblest genealogical and heraldic libraries in the kingdom; it is rich in foreign as well as in English genealogy and armoury.

In the Record-room are some 500 volumes of the heralds' "Visitations," dating from 1528 to 1687; records of all national Royal ceremonies, funeral certificates, Royal warrants and those of the Earl-Marshals, licences for changes of names, grants of arms, old rolls of arms, records of founders' kin, &c. Then there are the "Talbot Papers" and the "Arundel Manuscripts"; besides innumerable monumental inscriptions, and wills; all being documents of authority received in every court of law as evidence, from the earliest times down to the present day.

The College is also rich in manuscripts ancient and modern. Among those of earlier date may be specified a pedigree of the Saxon kings from Adam, enriched with pen-and-ink illustrations (*temp.* Henry VIII.); a volume in the handwriting of "the learned Camden," who was created Clarencieux in 1597; and some most valuable materials in MS. for the history of the College of Arms, by John Austis, an eminent English antiquary, who was created Garter King of Arms in 1718. He had been presented by Queen Anne, four years previously, with a reversionary patent of the place of "Garter," but having fallen under the suspicion of Government in the first Parliament of George I., as being a favourer of the exiled family, he was imprisoned at the very time that the office fell vacant by the death of the venerable Sir Henry St. George, and Austis obtained the post only after a long and bold struggle. The pedigrees of such noble, though untitled, families as have their arms and descents recorded here, are kept in a long series of volumes wholly manuscript, in which are duly entered, year by year, the births, alliances, and other changes which occur in the course of nature to modify them, and to render them of value for any legal purposes that may arise, and in which such documentary evidence can be made available. Here, too, the visitor who is fortunate enough to possess an "open sesame" in the personal acquaintance of some leading member of the College, may see in the gallery over the library the veritable sword and dagger which belonged to the unfortunate James IV. of Scotland, who fell fighting on the field of Flodden. The sword-hilt has been enamelled, and still shows traces of gilding; whilst the dagger, the hilt of which is similarly enriched, is still, to all appearance, a strong and serviceable weapon. The length of the blade is about 15 in. Another interesting relic preserved here is the plain turquoise ring which, tradition says, the French Queen sent to James, begging him to ride a foray in England. Readers of "Marmion" will not have forgotten the history of this lady's ring, how,—

> ". . . . The fair Queen of France
> Sent him a turquoise ring and glove,
> And charged him, as her knight and love,
> For her to break a lance," &c.

These objects are valued heirlooms of the house of Howard, whose "bend argent," as Mr. Planché tells us, "received the honourable augmentation of the Scottish lion, in testimony of the prowess displayed by the gallant soldier who commanded the English forces on that memorable occasion."

Among the pictorial treasures of the College are authentic portaits of Sir William Dethick and Sir Gilbert Dethick, both of whom filled the office of Garter; Sir John Vanbrugh, the architect, "Clarencieux"; Sir John Dugdale, "Norroy"; the Earl of Arundel (who bequeathed to the College the Arundel MSS.); William Cecil, Lord Burleigh; Henry Chitting ("Chester Herald"); John Charles Brooke ("Somerset Herald"), who left a valuable collection of MSS. for the use of the College, and who was crushed to death in a crowd at the Haymarket Theatre in 1794; Hawker ("Clarencieux"); John, first Earl of Shrewsbury, in his tabard; Sir Ralph Bigland ("Garter"); Peter Le Neve ("Norroy"); John Warburton ("Somerset"); and Ralph Sheldon, who bequeathed to the College about 500 folio volumes, known as the "Vincent MSS."

The Warwick Roll, a series of figures of all the earls of Warwick from the Conquest to the reign of Richard III., executed at the close of the fifteenth century, by Rouse, a celebrated antiquary of Warwick; a Tournament Roll of the time of Henry VIII.; and a Book of Emblazonment, executed for Prince Arthur, the brother of Henry VIII., who died young, are also to be seen here. This last-mentioned work is said to have been compiled in order to teach the science of heraldry to the young prince.

Like all other "Colleges," the society about which we now write holds its regular "Chapters" or meetings of its members, at which all the important business that is submitted to the opinion of the College is formally transacted. Its proceedings are secret and confidential, and its president is in theory the Earl Marshal, but practically Garter King, who has a casting vote on any question brought under the notice of the "Chapter" when the votes of the members are evenly balanced.

Here are discussed and settled all applications for changes of family names and the assumption of new ones; all grants of new arms to applicants, and also "the correction of arms, and all onsigns of arms, usurped or borne unjustly."

Like those of the Houses of Parliament before the time of Cave and Johnson, its proceedings are unreported, so that any eloquence used within these sacred walls is lost, *caret quia vate sacro*; and we, to whom the privilege of inspecting the art-treasures and handiwork of the "gentle craft" of our heralds has been accorded, should indeed be ashamed to repay their courtesy and attention by betraying the "secrets of the prison-house."

It only remains to add that the fanciful names assumed by the various heralds have each and all their reason and meaning. "Garter," for instance, is so called from being the chief officer in connexion with the Most Noble Order of the Garter; and, for the dignity of that order, he was made a sovereign within the Office of Arms, over all the other officers, subject to the Crown of England, by the name of "Garter, King at Arms of England." The other Kings of Arms are "Norroy" and "Clarencieux," the former so called from "North Roy" or King of the Northern Provinces, and the latter after the Duke of Clarence, third son of King Edward III., in commemoration of whose birth the title was instituted.

The six Heralds are named respectively "Somerset," "Chester," "Windsor," "Richmond," "Lancaster," and "York"; but, singular as it may seem, they have no official connexion with the districts from which they take their titles. There have been at different

periods other heralds, whose titles are now laid aside.

The other officers of the College of Arms are the Pursuivants, four in number; these are designated "Rouge Dragon," "Portcullis," "Blue Mantle," and "Rouge Croix." The name of "Rouge Dragon," as we learn from Chambers's "Encyclopædia," is taken from the supposed ensign of Cadwaladyr, the last king of the Britons, ancestor of Henry VII. The red dragon was also sometimes used by Henry VII. as a supporter. "Portcullis" is so named from a badge of the same monarch. "Blue Mantle," instituted by either Edward III. or Henry V., is so styled "in allusion to the blue robes of the Order of the Garter, or, perhaps, to the colour of the arms of France." The title of "Rouge Croix" is derived from the red cross of St. George, the patron saint of England. The last-named pursuivant is generally considered to bear the most ancient of the official titles connected with the College.

In former times, one Herald, or "King of Arms," had jurisdiction in all heraldic matters in the North (as hinted above), and another in those on the south of the Trent,—"Norroy" taking cognizance of the former, and "Clarencieux" of the latter; but this distinction is no longer observed. Nearly 200 years have passed away since the heralds made their last "perlustrations" of the provinces, and held their courts, and summoned pretenders and other offenders before them. A few returns, however, as Mr. Noble informs us in his "History of the College of Arms," were made as late as 1704. It may not be possible, under the altered circumstances of modern society, to revive their dormant powers,—for they have never been abolished by any Act of Parliament,—but it is certain that the investiture of Garter and his brethren with some of the "royal" authority of ancient time would result in the suppression and extinction of pretenders, whether to English baronies or to French marquisates: and in that case the tradesmen at the West End and charming and well-endowed widows would be less open to the artful impostures of "Lord de B——," of "Monsieur le Baron C——," and of "Monsieur le Duc de R——," men whose most appropriate title is "Chevalier d'Industrie." E. W.

A DRIVE IN VENETIA.

ANOTHER link between our own royal family and one of the oldest names of European nobility, has, within a few days revived the interest of all good subjects in the ancient traditions of the Hohenzollerns; while her Majesty, in visiting Northern Italy, will pass her few April days of quiet, snatched from the exactions of her position, on, for her, doubly Classic soil, the home of her ancestors, the scene of the long contests which have rendered the names of the Guelphs and Ghibellines historic.

More than one famous "castled crag," in the course of her Majesty's drives, so different to those at Balmoral, at Osborne, or at Windsor, will tell the tale of those struggles of the dark ages whose principal actors Dante has immortalised, and with whose fortunes her Majesty is so intimately connected.

But not so very far away from the shady shores of Lago Maggiore, in a corner of Venetia nestling under the last towering heights of the Alps, hidden away from the ruthless gaze of the ordinary tourist, lies an ancient castle, which, should her Majesty, as report has it, reach Venice, it would afford her no little pleasure to visit.

Overlooking the great plain of the Trevisan mark, and in the distance the towers of the "bride of the Adriatic," this picturesque castle, the venerable Castello St. Salvatore, is still occupied by the descendants of the Collalto family, which, at the time of our Conquest, built their fortress on these southern slopes of the Alps; a family of some relationship with her Majesty, as the dynasty of the Hohenzollerns which reigns over the German Empire, and the family of the Collaltos, spring from the same Longobard stock and still bear the same arms, a scutcheon quartered black and white.

During these lovely spring days, when her Majesty reaches Venetia, no more delightful excursion, nor at the same time one less hackneyed, could be found than a drive to the Castello Collalto, for few even among the Italians ever reach this beautiful, untouched corner of the province. From all time one of the enjoyments of the Venetian nobility has been a trip to *terra firma*, and a change from the easy action of the gondola to the rumble of a coach along the roads that lead from the coast to the larger towns inland. The rich Venetian patricians, chiefly in the seventeenth and in the last century, charmed with the mild climate, the smiling nature of the country-side, and the running streams of the neighbourhood of Treviso, had each there his villa, and clustering in the plain that slopes from the mountains to the lagoons, even now, deserted as are almost all of these charming summer residences, with their verandahs, their *spalliere*, their *pergole*, their fountains, and their statues, the plain still presents much the appearance of a vast suburb of some great city.

And chiefly towards the end of the last century it was to these pleasant villas, on the Piave and the Brenta, that the Venetians rowed across the calm lagoons, and passing from the "grand canal," with all its wealth of palaces, cut through the familiar "canareggio" of the gondoliers and passed the beautiful church of Sta. Maria dell' Orto, near the Franciscan convent, with its dear old-fashioned garden, which, only slightly changed, serves as the "Orto Botanico" of Venice, and so out on to the lagoons, by the canal, to Mestre, marked by dark clusters of piles; passing many a barge laden with produce, or the ferry with its loads, which now hurry along the railroad. And then, once landed, "jumbling," as Beckford described it a century ago, "over craggy pavements," to their villas on the "terraglio," which in the autumn was all ablaze with the fashion of Venetian "society."

And now the same road may be taken along the "terraglio," between grand villas and gardens, peopled with statues, past the famous villa which in the early days of this century was occupied by Byron's friend, the witty Isabella Albrizzi, who used to hold here her literary and artistic court; through the quiet village of Mogliano, and past the villa Alla Vida, on which, now many years ago, Lady Seymour, the Marchioness of Hertford, has left the impress of her English tastes; and many another pleasant country-house, and so into Treviso, with merely a glance at the painted façades of the deserted old palaces, the cool *portici*, the imposing church of S. Nicolo, the old Duomo, and the Campanile, and out of the beautiful city gate of S. Tommaso, and the long line of Fra Giocondo's fortifications, with the clear blue water of the moat, and so on to the hard chalk road to Udine. Again, past villas and gardens, and under cool plantain trees, with the snow-covered mountains in the distance not so far off, and out to the left the dark purplish brown of the forest covered Montello, through Spresiano, and by the old wooden bridge across the blue, shallow Piave, in its broad torrent bed, at this season almost dried up; and there, at last, rising in the middle-ground, relieving on the blue Alps, the Colle di S. Salvatore, and on its peak the castle of the Collalto family; past an old deserted convent, with an antique ruined church and belfry, and inside the garden-wall a group of dark, aged, hoary cypresses, and stretching out before one the whole panorama of the Venetian Alps, with, on their slopes, many a quiet town and village, Asolo and Montebelluno, Conegliano, and its old castle, and, far away, Udine, and up among the gorges Belluno and the entrance to the Cadore country.

And now begins the only up-hill pull in all the journey; no serious matter, and before five minutes are past the traveller is rewarded with a view of the whole Trevisan plain stretching for miles and miles to west and south and east. An important situation, chosen with the usual skill of the old builders, commanding a view of all the approaches for leagues and leagues around. A chapel is passed, in every part of which are quartered the black and white escutcheons of the family on the sixteenth-century altars, with their quaint stamped leather, on the tombstones, and above the door; and now at last we are on the terrace, with its glorious view, after passing along a wall in whose shade bloom at this season thousands of untouched violets scenting fragrantly the air, in innocent mockery of the crenellated and machicolated battlements which tower above them.

A peep in through the huge gateway shows us in the distance, beyond the long line of outhouses, the studied results of the peaceful gardener's art, the cut arbutus on the inner terrace of the inhabited portion of the castle; a town it almost seems, with its clustering houses, one of which has even a frescoed façade; and there still exist the antique drawbridge guarded by two grim stone lions standing as sentinels at the entrance of the antique courtyard which bears on its face the traces of all the numerous architectural styles which succeeded each other from the early military days of the dark ages down to the decadence of the rococo; the old terrace on which even now the stately *châtelaine* appears, and receives her visitors, as was the wont of her courtly ancestors in centuries gone by; the external staircase with its graceful colonnettes, the quaint bronze handles to the doors, the pointed windows, and the arches, speaking of one age, the broad steps with their entrance to the deserted wing, not unlike our own Haddon Hall, telling us of a later period; and still earlier the stout walls covered thickly with bushy ivy; but most interesting of all, the ancient chapel whose interior is one blaze of fresco work, whose walls in part glow with the work of no mean pupils of Giotto; but even more lovely and more interesting, the handiwork of a *maestro* himself, Pordenone.

That these works should have remained unknown, or so insufficiently appreciated, even if known, seems astonishing, when Padua for generations past has been so famous. It was with no little truth that, nearly half a century since, the antiquary Crico remarked of these same works of Pordenone that they were gems that merited being set in gold. They have never even been photographed, and the diligence of the Arundel Society seems not yet to have promised their reproduction for their appreciative subscribers.

In one wing of the old castle, now disused by the family, the spacious staircases and halls which tell of times gone by are hung with the family portraits of the ancestral heroes, and, as in all such collections, not a few warlike champions of a period when painting was still in its second infancy, and yet portraits alone distinguishable from the rest, by a somewhat greater *bizarrerie* of costume and armour; such series as we have all seen in Holyrood and many another ancestral palace. Rusty locks are turned, and huge shutters thrown back and silent halls traversed, and there is the armoury apparently resplendent in specimens of the Italian armourer's artistic skill; if so inch-thick with rust and neglect, and sadly open to the suspicion of the whole having been vamped up to satisfy the pride of some seventeenth-century Collalto, it is only too true that, as one is told apologetically, the best pieces have been taken by the owners to their own more comfortable portion of the castle.

Peeps from windows here and there show the distant views or the battered towers and fortifications close at hand. Romantic neglect and deathly liveliness hang over the apartments once so brilliantly occupied, and which seem absolutely to require the starched costumes and manners of the past to fill them. The castle, circled with its stout walls, and purposely cut off from intercourse with humanity, is an anomaly which, now that our advanced civilisation has seen the advantages of association, it seems scarcely possible to revive.

The purplish blue of the mountains deepening each moment as the sun wanes, tells of the decline of the day; another glance at the old ivy walls, the old courtyard, the draw-bridge, and the battlements, and a roll down the steep hill brings us to the level of the plain below, and soon the old castle stands out with its slender tower relieving in the orange blaze of the setting sun on the dark background of the mountains, throwing, were that possible, an additional romance round the picturesque home of so many poetic traditions. Still, as the visitor trots away, the castle keeps in sight, and with it the beautiful neighbouring town of Conegliano, Cima's birthplace; and far away to the left the little village of Asolo clustering round its castle on the slopes of the Venetian Alps.

A rumble across the wooden bridge of the Piave, and a trot on the good hard roads, and soon the lights of Treviso appear in the evening haze. The officers of the *dazio* must be asleep at the old Porta S. Tommaso, as they fail to rush out, the city seems deserted, a rattle through the streets and past the *portici*, and out on the shady "terraglio"; another glimpse at the snugly-hidden villas, and soon in the distance the lagoons come again in sight,—a change from the rumble of the roads to the rolling of the gondola; a glance at the grand old Friulian mountains, towering far out on the left, their highest peaks lighted up with the last rays of the golden sunset, the low water in the lagoons

crisped with the evening breeze, at this season still chilly; a few belated gulls fluttering down among the reeds of the marshy ground; a light religiously kept burning in the tiny Madonna's tabernacle in the midst of the lagoon; and then Venice again in sight, and the sombre trees of the Orto Botanico; darkness and quiet in the canals, a gliding light or so from some gondola lantern; in the antique palaces scarcely a window lighted, with the exception of the princely public reading-room of the Palazzo Querini.

It is a contrast that no other part of the world but Venetia can afford,—such a transition from the stately deserted old palaces of the Venetian nobles floating, as it were, on the ocean, to the Mediæval fortress situated far away up in the blue Venetian mountains, and still occupied by descendants of its original founders, relations of the royal Hohenzollern family.

NEWSPAPERS UNDER THE ROMANS.

NOT long after the foundation of Rome, probably under Numa, the high-priest was enjoined to write the chronicle which it was his duty to keep upon metal tablets, and to exhibit them publicly, so as to enable every one to inform himself regularly, perhaps once a week, of all that had lately happened. Not only recent events were made public in this manner, orders of the government were also posted up; and we thus have in these *Annales Maximi* perhaps the first outlines of a newspaper, an official newspaper too, and in the *Pontifex Maximus* the prototype of all journalists.

The original form remained unchanged for perhaps four or five centuries, until the compilation of this newspaper, which among newspapers has, it may be said, up to the present time, had the greatest longevity, came to an end with the high-priest editor, P. Mucius, and was replaced by a daily paper, the *Acta Populi Romani Diurna*, to which under Cæsar the *Acta Senatus* were added.

The Roman public were now informed daily of all that happened from day to day, especially of the important discussions and resolutions of the Senate, and thus we see Rome actually at the beginning of our era in the possession of two eminently political newspapers. The passion of debate, the discussions on the welfare of people and state, were thus brought right into the street, and were there continued perhaps with more liveliness than in the midst of the executive and legislative body.

Notwithstanding this vehicle of publicity, which, however, by no means can be looked upon as a free organ, as it was subjected to a certain supervision, or "censure," as we now call it, the old republican constitution was unable to maintain itself permanently. The fundamental base of the Roman state, which was directed against the most sacred rights of man and against the fountain-head of all lasting existence and well-being, against work and the rights of property, rendered the existence of a free constitution impossible. A state which recognises towards other states only one law,—that of force,—must finally itself be struck by this withering agent and shaken in its very foundations. Rome, which gave laws to the whole world, no longer was permitted to legislate for itself. It governed no longer; it was governed. A Roman, not Rome, was the master.

We need feel therefore no surprise when, with the advent of the empire, we witness a change in the institution of newspapers. The amalgamation of the two newspapers into an official gazette may be only an exterior sign, but it is not devoid of significance; for, with the abolition of the *Acta Senatus*, the necessity of supplying information from the Senate was dispensed with. This body, although it existed only in form, and had become a nursery of servility, was yet adapted to keep alive in the people the memory of other, freer times; and this knowledge of sapping the consciousness of its power in the people was henceforth the secret aim of the Roman official gazette. Fully recognising the great influence of the "press," the emperors cultivated it most assiduously, laid great importance on its publication, and took care to disseminate it; for copies of the official gazette were sent to all the provinces, so that we may safely say that the first newspaper read in Great Britain was a Roman one. In Rome itself the news published daily was diffused very quickly. Every bookseller employed people who took copies and made extracts; these were then sent to subscribers in the city and the provinces, copies being besides exhibited in the booksellers' shops. But many private persons also employed copyists, and thus we may easily picture to ourselves how in the hall where the *tabulæ dealbatæ*—the wooden tablets coated with gypsum upon which the official gazette appeared—were exhibited there ebbed and flowed a life very similar to that we may now witness on special occasions before the publishing offices of evening papers, or at the more important railway bookstalls, when the public are impatiently awaiting their issue. Probably in the times we are speaking of there may have been in the front row the copyists, eager to take possession of the stone seats and tables; behind them was the crowd, consisting of the poorer classes of the population, and as soon as the tablets were exhibited, one may have voluntarily undertaken the office of reader, and announced with a loud voice the news, of which there was never a scarcity. There was no want of "war" news; the battles and captures of fortified places were given in detail; gladiatorial fights, strange phenomena, popular festivities found description; municipal notices, law intelligence, births and deaths, marriages and divorces, as well as adoptions, formed standing heads, by the side of much sought after choice tit-bits of anecdotes and stories. But the greater portion of the official gazette was filled with court news, celebrations, and ceremonies; the journeys of the emperor were also given in detail; everything in his favour was placed in prominent places, and everything done to concentrate the interest of the people upon this one point in particular. So many subjects of conversation were supplied to the people by this manifold character of the contents, and the many little stories and tales, and their thoughts so successfully diverted from important affairs of state towards trivial matters by the announcement and accounts of popular fêtes, that everybody submitted to this seeming existence of the Senate, and was satisfied with the meagre announcements, always submitted to the most severe censorship, of debates and resolutions of the Senate. Unfortunately, no copy of the official gazette has been preserved to us; we are able to gather its contents as described above only from the quotations of contemporary authors, who not unfrequently referred to those gazettes, and incorporated extracts from them with their writings. From the latter it appears that advertising also was an established institution at that early time; for the official gazette published not only public auctions and building contracts, but also private announcements of births, deaths, weddings, &c., which were inserted probably only for payment.

Thus we notice the appearance in Rome nearly two thousand years ago of a newspaper which agrees in its essential particulars with our present journals. None of the requirements and characteristics of a newspaper were wanting; it published regularly information of every description. The modern system of newspapers which took its rise in the middle ages in Germany can be looked upon only as an after-invention, which became all the easier as the invention of printing, together with the curiosity, or, if we prefer it, the desire for knowledge of humanity, led by itself to the quick and cheap multiplication by this method of more important events.

Newspapers declined with the decadence of Rome, and they were and remained buried under the heap of ruins into which the repeated irruptions of the "barbarians" changed the city.

A slight reflection of them, however, continued to shine for some time at the court of Byzantium, where the flatteries of courtiers were deposited in the *Breviaria Principum* and the *Registra Scribarum*. This last flutter of the spirit of newspapers was extinguished in that frightful epoch in Europe which for centuries saturated the soil of all countries with gore, spread everywhere the horrors of war and murder, of desolation and destruction, and drove all people from their native land. When finally the storm flood had returned to a bed where life flowed more smoothly, the troubadours became the carriers of news, as formerly in grey antiquity, and crossed the countries until the time when through the black art of Gutenberg and Caxton they found their occupation gone.

In a lecture delivered quite lately, Professor Morley, of University College, London, advanced the opinion that "there was no such thing as a newspaper in ancient times, the first germ of those productions having been planted in the Middle Ages." If the Professor only looks to the form in which newspapers now appear, he is right; but readers of our article, which was in type before the lecturer spoke on the subject, will agree with us that newspapers did exist in one shape long before the time fixed upon by the lecturer. The words of Professor Morley, presuming him to be correctly reported, that "the newspaper owed its rise to a custom which prevailed in Venice in the sixteenth century of reading aloud in a public place a manuscript sheet of news of general interest, prepared by the authorities, the sum paid by such as cared to hear the reading of this document being one gazzetta, a fractional coin then current, which has, from this association, given its name to the *Gazette*,"—might lead some to the conclusion that he was unacquainted with the custom of the Romans, a supposition, however, which may be summarily dismissed.

THE CIVIL ENGINEERS' DINNER.

THAT clause in the modern code of good manners which prohibits what is called "talking shop" at the dinner-table, has sprung from the very natural desire to set up a firm barrier against boredom. To those who have enjoyed the company of very eminent men indeed, so eminent as wholly to disregard the rule in question, the value of the regulation is most apparent. Years ago there was one of these men,—not only conventionally but really eminent,—whose constant introduction of the one subject on which he knew more than all the world beside (which happened to be Egyptian mummies) made his presence at the dinner-table a matter of absolute terror to his fellow-guests. But while fully admitting, with the rising men at our universities, that the man who introduces "shop" at dinner ought to be "sconced," there are certain limits to the rule. Thus, at great civic banquets, when the health of her Majesty's Ministers is proposed, the company would be grievously disappointed if the Premier were to give a speech referring to the delights of rural life, and the Chancellor of the Exchequer were to follow with a disquisition on butterflies. And so at the annual dinner of a body of men who have, or are supposed to have, so much of the future, not of this country only but of the world, in their hands, as the Institution of Civil Engineers, we cannot but think that it would be either straining a point of etiquette, or making a very serious blunder, to discuss the position of the monument on Fish-street-hill, or the fact that the Thames continues to run through London, without any reference, however general, to the advance of the year, or of the age, in the great warfare of physical science against practical barbarism, and even to the subject of the most urgent physical wants of the day.

The allusions, for they were little more, of some of the speakers to the great features of the science of the day were happy. Colonel Stanley's expression of a hope that the civil and military branches of the profession may go hand in hand was one of these. The remembrance of the French work in the Crimean war will be fresh in the memory of some of our readers. On this part of the subject the primary lesson to be borne in mind is the madness,—we can find no word short of it,—of entering on any large and complicated work, whether it be the construction of a tunnel or the conduct of a campaign, without, as a first preliminary, providing the means of telegraphic communication.

Mr. W. H. Smith's reply for the Navy was characterised by the tact and practical good sense of which the right honourable gentleman so frequently gives proof. His reference to the appointment of a civil assessor on the Committee of Inquiry into the explosion on board the *Thunderer* was naturally well received by the company. It was, of course, not necessary to say that, instead of one question having been settled, two have been opened, by that report, as to which attention is now anew being directed. Sir M. Hicks-Beach referred to the Cape Telegraph Line as shortly to be completed, and to the necessity of economy in public works in the colonies. It was no more than the truth that the right hon. gentleman declared when he concluded with the remark that, though historically young as compared with the Church, the Law, or the Army and Navy, the profession of the civil engineer "will, in respect of world-wide knowledge and general accomplishments, compete favourably with many of them," and that

it is to the skill and industry of her engineers that Great Britain owes much of the welfare of herself and her colonies.

The thoughts and words of Mr. Roebuck were of the House of Commons rather than of his hosts. Mr. Lowe, having on former occasions (he may have thought) said enough as to the future of the engineer, took the opportunity of saying a sharp word as to the literature of the bookstalls, in behalf of which Mr. A. Trollope took up the cudgels. Mr. Chas. Barry took a position of which the importance should not be overlooked, in urging that the æsthetic side of public works cannot be neglected without public loss and injury. The veteran Professor Owen spoke of the organic engineering of the vertebrated kingdom of animals, a subject which owes so much illustration to his own labours. On the whole the chairman was well supported. It is, of course, important on such occasions to avoid any questions that might divide opinion. Still, there are some points, such, for instance, as the line of mail communication with India, the conservancy of our river valleys, and the advance to be made in steam communications other than those of the railway (whether by the tramway or the traction-engine) to which we should have expected to have some mention made. The one great point to bear in mind is that, though a giant, the profession of the engineer is as yet a giant in the cradle.

THE ECCLESIOLOGICAL CRAZE AGAIN.

Many of our readers, of course, remember all about the almost insane passion for and devotion to everything in the shape of Mediæval church furniture and arrangement which not unnaturally (taking human nature for what it is) accompanied the artistic revival of Mediæval architecture in our younger days. The doings of the Camden (subsequently the Ecclesiological) Society, their righteous indignation over the most trivial departures from rubrical direction or historical precedent, were the butt of some of the few writers of that period who were too independent to be carried away with the stream; while the unhappy church architect, on the other hand, was too often the butt of the Ecclesiological Society, and could not depart from the orthodox form of moulding for the period he was imitating, or put a piscina in the wrong place, without the chance of the interference of an amateur clerical dogmatist, and of being held up to ridicule at the next meeting of the society. Some of the architects snapped their fingers at this and laughed in their turn; some, as we well know, felt irritated to the last degree at this ecclesiological espionage and self-constituted paternal government. There was no doubt a point of view from which such a systematised overseeing might be considered praiseworthy, or, at least, defensible. If it was once to be admitted that the one thing needful in architecture was to reproduce exactly a certain style of architecture and furniture belonging to a certain century, then perhaps the establishment of a society to look after this, from pure enthusiasm, might be regarded as an unselfish association for the public good, and the mutual banding together of students in order the more thoroughly to investigate and reproduce the style of a thing that was exclusively admired, might be considered as only a proper zeal, in the spirit of the healthy maxim, "whatever is worth doing, is worth doing well," even if it be only Mediæval mimicry. For a good many years past, however, there has certainly been a growing conviction in the minds of educated men that this kind of thing was not worth doing, and the importance of the Ecclesiological Society had gradually died out,—*stabit nominis umbra*,—even in the eyes of lovers of Mediæval architecture, who began gradually to see that it was the architecture that was admirable, as a matter of style and design, rather than the Mediævalism;* and, except with a few old stagers belonging to the last generation rather than the present, it was tacitly understood recently that ecclesiology was a matter of very secondary interest, and had nothing necessarily to do with architecture.

It now actually appears as if we were to have the whole of this folly revived. Our last number brought into conjunction a report of a paper read at the Architectural Association by Mr. Weale, on the school of St. Luke at Ghent, and that of the first meeting of a new Ecclesiological Society formed under the auspices of some of the clergy of St. Paul's Cathedral. At the latter meeting an address was given by Mr. Beresford-Hope, who, as all our readers know, was one of the leading members of the old society. It would be far from our wish to say anything otherwise than cordial in regard to an old friend of the architectural profession like Mr. Hope, but we must say that we do not think he is acting the part of a true friend to the younger generation of architects and amateurs in advising them deliberately to take up again a form of study which has proved barren of anything but mere Mediæval imitation, once for the time the fashion, but now rapidly ceasing to be so. Indeed, we are pretty certain that Mr. Hope is looking at the present through the spectacles of the past when he draws a picture of the improved appreciation of ecclesiology at present, proof of which is to be met with, he avers, in society, "even at the most casual gathering." That Mr. Hope should think so is, perhaps, not unnatural, when we consider that persons who take a lively interest in a subject, and have been much occupied about it, are sure to meet frequently, whether "casually" or otherwise, just as the amateur of blue china in *Punch*, when he was invited by the duke who had a similar mania, found the rest of the company consisted entirely of his "blue"-collecting friends. And, of course, the many who are aware of Mr. Hope's deservedly prominent position as an ecclesiologist will be not unlikely to wish to get his ideas, when they have the pleasure of meeting him, on a subject with which his name has been so much connected. We can hardly suppose, therefore, that Mr. Hope's idea as to the greatly increased interest in the subject in general society is likely to have been based on a quite fair test. We can only say that our own experience would lead us to a very different conclusion, and we have met with no reason for supposing that there is any revival of interest in the subject except among a certain set of people closely connected by position or predilection with what we may, we suppose, call the Ritualistic party; for it is to all intents and purposes a party, and with very strong party views and prejudices.

Passing from that question, what is it really which Mr. Hope and the St. Paul's Ecclesiological Society want? As far as we can make out from the report of their meeting, they want deliberately to begin over again a phase of dilettantism which has been gone through already, which has done any good which it could do, and which, in the view of most thoughtful people, is a thing already entirely out of date. The Ecclesiological Society as originally started was, perhaps we might say, an inevitable outcome of the times, and it did this good (amid a great deal of nonsense) that it directed attention to a neglected field of archæology, and it improved church architecture for the time, so far as this, that even mere imitations of Mediæval churches were better than the bald ugliness of the places of worship of the early part of this century. But this work has been done; its value at best was only temporary, and what we are now looking for is the rational study of church architecture in regard to the future, not the past. It is really utterly absurd to begin over again all this solemn farce of visiting churches, note-book in hand, and tabulating all their characteristics in order to arrive at the ideal of a perfect church. If the Ritualist or Mediæval party represented Society, and were likely permanently to do so, it would be another thing; very possibly they think that they do, but they are quite mistaken; society at large will not be governed by their crotchets, and does not want their imitation Mediæval churches, of which there are already far too many in the country, representing an enormous amount of money wasted on unreal archæological playthings. What sensible people want now is to see the modern architect able to produce a fine and impressive building suitable to the special requirements of his own day; and there is no reason whatever why churches are to be excluded from this category,—why a man is to make any other class of building as good as he can according to the best modern theories and experience, but when he comes to build a church he is to be told that he has nothing to do but reproduce as accurately as possible a former type which arose under conditions perfectly different from those which affect architecture, and which should affect church planning, in the present day.

The suggestions which arise out of the paper of Mr. Weale, above referred to, involve an even more dire mistake. We have here the account of a deliberately formed society to make a collection of modern workmen into a collection of Mediæval monks (see page 377, *ante*). A set of youths are put under the direction of some people who are called "brothers of Christian doctrine," are instructed in Mediæval art, and (apparently) in that alone, sent about Europe to copy Mediæval detail, brought back to work at Mediæval decoration; so that, in Mr. Weale's words, "the whole colony leaves a decidedly favourable impression on the mind of the visitor, carrying him back in thought to the life and manners of the good old times of the Middle Ages." As a climax, we read in the next sentence that the exclusive study of Christian models being considered the only way to arrive at a regeneration of art, all Renaissance or "Pagan" art is rigidly excluded

Are we never to be rid of this nonsense? Here is a man, apparently possessed of ordinary mental faculties, actually recording the "favourable impression" produced by seeing a whole set of people living a sham life, and pretending to be Mediæval artists; and then, of course, comes that eternal cant phrase about the "good old times," which some people never seem tired of parroting, as if it were a sort of charm. And then, better than all, we actually read, in the succeeding sentence, that "all ancient art was the natural outcome of the people." And so, by way of getting an art which is a natural outcome of the people, an artificial system is set going to bring them all into a state of mind and habit totally unnatural to them,—a complete masquerade, by way of putting them in the condition to produce genuine art! To see these notions seriously urged again, to see again the old fallacy about art being impossible without faith and morals (*i.e.*, the particular faith and morals of a particular period) again displayed, after the warning already given by the utter collapse of the pietistic schools of Overbeck and others, is enough to make one despair. It is useless to expect that the architectural profession can take the place in public estimation, in the estimation of the intellectual public, which it might and ought to take, as long as those who profess it accept such mere dreaming as this in place of the practical part of architecture in modern life. Societies and professional men who band themselves together in cliques to carry out and encourage each other in these fantasies may be very well pleased with themselves, but if they took any trouble to find out what Society in the wider sense thinks of them, their eyes would perhaps be opened. It is no doubt in a great measure owing to the prevalence of all this moonshine that modern architecture appears to so many people a thing not worth either respect or attention. In spite of the ugliness of most of their structures, the engineers are thought highly of by most of the strongest-minded men of the day, because they are giving their abilities to the work of their own time, and are doing what people really want to have done. The architectural profession is happily not without its representatives of the same type, but they have to pay the penalty for the more demonstrative people who exhibit architecture to the public as a mere thing of faded fancies and pretences, and in so doing go far to make the whole subject of architecture "a scorn and derision to them that are round about."

Health of the Toxteth District.—According to the annual report of Mr. Hall, the surveyor, it would appear that this district for several years has been making considerable progress in buildings, especially of the better class, and the year which has just ended shows that this satisfactory state of things has been fully maintained. The total number of plans submitted during the year was 320, as compared with 199 in the previous year. The surveyor in his report also dwells with satisfaction on the continued good health of the district. On this point he says,—"Whilst the death-rate in the borough of Liverpool has been very high, and the death-rate in some of the most healthy and favourite places in the kingdom has increased during the past year, the death-rate in this district has been very low, for there were but seventy-nine deaths during the whole of the year, being under ten per 1,000.

* There was, for instance, no more enthusiastic student and lover of Gothic architecture to be found anywhere in Great Britain than the late Mr. Edmund Sharpe, but he always strongly and consistently repudiated the idea that it was in any special sense a clerical study, or a property of the clergy rather than of the laity. The architects were, he thought, the people who understood the subject, not the clergy.

VARNISHING DAY AT THE ROYAL ACADEMY.

THE gentlemen who very little more than a century since framed the laws that have successfully regulated the affairs of the Royal Academy but little dreamt of the accumulated blame and censure that have been, year after year since 1768, heaped upon the governing body of our great artistic institution. Nothing could be much more unreasonable than to entertain for a moment the belief that the early members of the R.A., any more than the present existing professors, could have any peculiarly selfish aim, or desire, to injure any one, or could indulge in any more than the ordinary amount of prudential desire for their own protection, although it may be admitted that their method of dealing with non-members of their society has been at times, perhaps, confined within too narrow a circle to fulfil entirely our idea of human perfection; certainly, each succeeding government of the Royal Academy, since the early days when good King George reigned, and when Sir Joshua Reynolds occupied the same chair* now filled by Sir Frederick Leighton, has manifested but little disposition to make any change in the laws in any way relating to their affairs, and especially to those laws which regulate the annual exhibition.

For many years after the foundation of the Royal Academy, it was considered by "outsiders" an enormous injustice that, during the month between the time of "sending in" the pictures and the artistically historical first Monday in May, the Royal Academicians and the Associates should alone have the privilege of "touching" and of "re-touching," of "glazing" and of "scumbling," of "heightening" and "subduing," of washing and of varnishing, and what-not, to the supposed tremendous advantage of the Royal Academic works, and to the imagined fatal effect by contrast to the surrounding works by "outsiders."

We, however, rather suspect that if the experienced painters that the Royal Academy has created within the last hundred years could be consulted on the question of varnishing and retouching at the Royal Academy, few would be found to encourage the belief that it was a safe thing to retouch, ever so deftly, or to make any very serious alteration in a picture, hanging on the walls of the Royal Academy, during any of the busy days and hours between, say the 5th or 6th of April, and the last days of that month.

Still there can be no doubt that it was an advantage to the painter to be admitted, for ever so short a time, in those shiny days, to varnish or "oil out" the often-elaborated, if not sufficiently-considered picture, and it must be owned that we have certainly seen pictures at the Royal Academy that appeared at least to require some additional use of the brush, and that brush the familiar duster.

After a prolonged wail of complaint from outsiders at the injustice of the Academic period of retouching, a slight concession was made by admitting a limited number of non-members on their application to the proper authorities, who courteously granted permission to them to "retouch" or varnish their pictures if they thought proper; and at a later period a limited number of circulars were distributed, the presentation of which admitted the painter "on one day before the opening of the exhibition" for the purpose of seeing his own work.

At the present day, and for a few years past, artists whose works have been placed on the walls of the Royal Academy, are informed by advertisement that they can, if they please, "inspect" their works on the Wednesday previous to the opening of the exhibition; the Academicians and the Associates receiving by post a large card affording them the same interesting information.

At the varnishing-day, outsiders do not meet many of "the forty," not a few of whom we suspect find it anything but an agreeable *réunion*; for what between the ill-concealed chagrin of those painters whose works have been badly placed, and the very spare minority whose pictures are "on the line," and the large number of unhappy painters who, having one picture placed, are in the habit of declaring that their best work has been rejected, and so on, the poor hangers, at least on this day, are sadly tried; but really, to do them justice, they have generally made such excellent use of their years of academic training up to this point of supremacy, that they rarely seem at a loss for the cool tone of indifference, a kind word of sympathy to the injured, or for the ready, graceful congratulations to the successful painters, suitable to the occasion.

And, after all, perhaps, the painter on the varnishing-day, whose work has been well hung, and who experiences the peculiar elevation that a picture "on the line" creates, is the artist most to be condoled with; for if he be well instructed, he is certain to be disgusted with the appearance of his own work, and just as certain will the hopes that are raised above the pleasant level of his picture be followed by a feeling of depression.

On the whole, the artists at the Royal Academy on the varnishing-day conceal their elation or mortification as well as most of us on trying occasions, and congratulations in the room are frequent and hearty, whenever the work of a familiar brother painter is conspicuous for its merits.

The last generation of artists who year by year made their appearance at the Royal Academy on varnishing-day, were not a little remarkable for that peculiarly artistic aspect which consists in an assumed indifference to the generally received notions regarding "get-up," and especially, it has been remarked, could an artist be known by the length of his hair and the unusual breadth of his hat-brim, in addition to which a generally sad appearance of dustiness, not to say seediness, which in a measure warranted, in a commercial country like ours, the ill-sounding designation "poor artist" whenever the prosperous classes had occasion to speak of workers who know or ought to know, that life is short, art long, experience fallacious, and judgment difficult.

Now-a-days the "poor artist" not only brushes up his canvasses with especial care, but the rest of his "shoddy," and in appearance is as bright and shining on varnishing-day and in his own studio as the best of his buyers; and on looking over the addresses of the wielders of the brush or chisel in the last pages of the Royal Academy catalogue, it is found they no longer linger about Newman and Charlotte streets, as they did in the beloved days when Mr. Pendennis tried to be an artist, but have contrived to find quarters quaint and costly, and truly in pleasant places, both in London and its neighbourhood; and varnishing-day at the R.A., instead of representing, as of old, a preparatory day for cleaning up, say 1,000, pictures, of, at an average, 30*l.* apiece, now represents the business-like totalling up and looking after a collection of saleable property, valued, we should think, at something not far under a quarter of a million, 70,000*l.* or 80,000*l.* of which may be fairly calculated to go year by year into Kensington alone, to repay the "poor artists" who shed so golden a glory upon that favoured suburb.

* A Chippendale chair, by the way.

"A PORTFOLIO OF ANCIENT ENGRAVINGS."

IN the absolute correctness of the above title we have many misgivings; it is copied textually from the announcement of the contents of *Fraser's*, from that inviting list of the magazines which appears so regularly at the commencement of each month. But the promise of an article on "A Portfolio of Ancient Engravings" holds forth a treat more than usually novel in the careful pages of *Fraser's*.

What these so-called "ancient" engravings may be, we have before reading the article conjectured upon. Residing almost in the cradle of the engraver's art, at no great distance from Venice, and in a city where the Dominican Francesco Colonna, the friend of Aldus, passed so many years of his interesting life; within a few miles of Feltre, the birthplace of Panfilo Castaldi, whom the Milanese typographers have claimed as the instructor of the metal-worker Faust, of Mayence; in the fatherland of Maso Finiguerra, the possible discovery of a number of "ancient" engravings, it may be imagined, is somewhat interesting.*

Can they be impressions from the ornamentation of some pre-historic Celts, or the cherished bone implements of the Cave-dwellers? Are they the impressions from some Cambodian or Sanskrit temple or some Assyrian or Egyptian monument, from some Cypriote tomb or Grecian or Roman vase, from some one of the few mystic Etruscan mirrors which we treasure in our British Museum, or from some Runic monument or Scandinavian relic of the dark ages? The word "ancient" rouses no little interest; we have no necessity to turn to Hallam to learn that ancient history ends with the fall of the Roman Empire, or about the fifth century. Can these engravings be prior to such an epoch? Shrewd suspicions are roused by the mention of the "portfolio." Are these impressions on papyrus or on vellum, or on some of that superb paper which we see in some of the fourteenth-century MSS., and which so closely imitates parchment?

That the French, where we should speak of *old*, might use the word *ancien*, the Italians *antico*, is certain, and here probably is the key to the puzzle. May it not be possible that we are to hear about a portfolio of *early* engravings, to use a term more correctly applied to works none of which are known to have been produced previously to the latest years of the Middle Ages?

But even as early engravings, it can be no bulky portfolio, unless, of course, some of the superbly-illustrated books of the end of the fifteenth century have been broken up.

The historical precedence of engraving must be accorded to the woodblock. Some years since, the oldest woodcut of known date was a St. Christopher of 1423; soon after another cut was found with the date 1418, one of the treasures of the Bibliothèque Royale of Brussels; but more recently Henri Delaborde discovered, and described in the *Gazette des Beaux Arts*,* a woodcut of 1406. But all three prints are absolutely wanting in any artistic qualities; they are purely objects of archæological interest.

Three nations dispute the merit of the invention of engraving,—Italy, Germany, and Flanders; but none have a better artistic claim than Italy in the "Coronation of the Virgin," the plate of which, engraved by Maso Finiguerra in 1452, is treasured in the Uffizi at Florence, and the only existing proof known forms one of the most precious gems of the Paris Library; as do the sulphur prints, by the same master, of our British Museum, which are shown, together with the so-called "Benvenuto Cellini Cup" and Albert Dürer's unique "Death of the Virgin."

It is no difficult matter to imagine the *nielli* taking an important place in the portfolio; the works of such artists as Giovanni Dei, or Peregrino da Cesena, whose monogram is one of the best known among the few *niellatari*; or even Francia of Bologna, the merit of whose works drew the attention of Raimondi and the admiration of Raffaelle; perhaps some work even by Marc Antonio himself, though so few of his works, as a *niellista*, are known away from Paris or the precious collection at Genoa, of the Count Durazzo.

Certainly the portfolio must contain some works by the early masters of Florence, that predestined city which, after having produced the noblest works of the painter and architect's art in the Middle Ages, was to precede all other Italian cities in the art of the engraver, of which it was the cradle; as if the two sister arts, called upon to aid each other in perpetual friendship, were to see the light under the same benign sky.

Certainly there must be in the portfolio some specimen of the first engravings on metal produced in Italy, and which may be found in the "Monte Santo di Dio" of 1477, and in a choice edition of "Dante" of 1481, the drawings for which, we have Vasari's authority, were furnished by Sandro Botticelli, who assisted the engraver, Baccio Baldini, to whose exquisite hand Bartsch has attributed not a few rare prints, some lovingly fac-similed in Young Ottley's "History of Engraving." The stern dignity of the Prophets and the Sibyls, which at the time of their publication met with such an enthusiastic welcome, is doubtless represented, as also some works by Antonio Pollajuolo, the contemporary of Maso Finiguerra, and who, metal-worker and *niellista* like him, showed such surprising ability, not alone as an engraver, but as a painter. Does the portfolio contain even one of the only three prints known to be by him, the Hercules, the Centaurs, or the "Struggle of the Ten Nude Figures"?

* Since this was written, the article named in the advertisement, which set our correspondent in a foreign country thinking, has appeared; we are disposed, however, to believe that his suggestive inquiries will not be found uninteresting.

* March 1, 1869.

Will the portfolio yield some print by Filippo Lippi, only so recently proved to have handled the burin? or by that beautiful, graceful artist, Robetta, of whom in his lengthy chapter on the Florentine engravers, Vasari, strangely enough, makes no mention, and who, one of the oldest of the engravers of the school, may be considered the last of the early (not "ancient") masters?

Or may we come upon some specimen of the work of those Italian artists who left Italy for the court of Francis I. and Henry II., under the guidance of Leonardo da Vinci and Andrea del Sarto, and who, accompanied by a crowd of engravers, founded the School of Fontainebleau, so important in the history of art, and from whose works and from the engravings those artists brought with them from Italy, Jean Goujon and Germain Pilon may have drawn so many of their graceful conceptions?

Or shall we light upon some works of that first of professional engravers in Italy, the Paduan, Andrea Mantegna, the few rare copies of whose unfinished "Triumph of Julius Cæsar," or the Christ, and the Descent into Purgatory, are among the precious treasures of the great collections of Europe?

Shall we see some rare early Venetian engravings from the masters inspired by Mantegna? Let us hope to see described some work by that little-known engraver, Gerolamo Mocetto, the friend of Gian Bellini, and whose rare works can scarcely be seen out of Paris; where the national collection treasures a "Judith and Holofernes," and a "Bacchus" of amazing beauty.

As a portfolio it will be incomplete if it does not contain at least one specimen of the strangely characteristic work of the learned Giulio Campagnola, in whose rare etchings we see successively the influence of Albert Dürer, of Giorgione, of Gian Bellini, and Mantegna, and who was the first engraver to adopt the *punteggiatura*, or the *criblé* method. Nor should there be wanting, rare as they are, some specimen (perhaps a proof of the "Sacrifice of Abraham") by Benedetto Montagna.

May not the contents of this portfolio show those who believe that Leonardo da Vinci never handled either the burin or the etching-needle to have been in error? Or may we not find some page barbarously torn out from a copy of that most precious of volumes, the work on Santa Veronica, printed at Milan in 1518, and three of the illustrations of which are believed to have been drawn by Leonardo's follower, Luino?

Shall we, if the portfolio is, as it should be, divided into the various schools, among the works by the Bolognese school find some work by Raibolini, known as *Il Francia*, and of whom, as a *niellista*, we have already spoken? or shall we find described some work by Francia's pupil, Marc' Antonio Raimondi, who eventually became the founder of the Roman school of engravers, and who, under Raffaelle's directions, produced so many of that master's drawings, which, thanks to the *autotype*, the world at large is now able to enjoy. Marc'Antonio alone reproduced drawings, and never, directly, a picture by Raffaelle,—a fact to be noticed, as his works, deprived of pictorial effect, have seemed to many to be wanting in tone.

Shall we, again, among the works of the more northern artists from the Low Countries, come upon any "ancient engravings"? Some illustration from one of the four editions of the famous *Speculum Humanæ*, or the "Poor Man's Bible," or the many works adorned with woodcuts produced in the Low Countries, at Amsterdam or at Antwerp, during the fifteenth century, under the influence of the Florentine art of the court of the Dukes of Burgundy? Is there a work by Jacob Cornelisz or Johann Walter Assen? or of that rare engraver on metal who bears no other name than the "Engraver of the year 1480," and whose works may be seen at the Amsterdam Museum?

Do we find described any of Lucas Van Leyden's beautiful works, so carefully considered in their perspective and drawing? Do we have our attention drawn to the value of his engravings in the history of costume and architecture? Do we have described the series of the beggars and peasants which inaugurated that infinite series of such subjects which in later years Teniers, Ostade, and Dusart were wont to paint so characteristically? Have we here any works of Dirck Van Staren, for instance, the St. Luke in his painting-room; or of Alaert Claas, the copyist of Lucas Van Leyden, Hans Beham, Aldegrever, and Dürer?

Can it be possible that this portfolio contains any German engraving produced prior to 1460, for if so, it may indeed be termed "ancient." Perhaps we have some work of Pfister of the middle of the fifteenth century, and of whom M. Leon Laborde has told so much. Naturally we have described a number of German engravings of a later date, for in no country more than in Germany was the engraver's art practised at this time,—interesting works, even if far from beautiful.

Certainly we have Michael Wohlgemuth represented by some of his superb works, the Apocalypse, or the Life of the Virgin, and with him Lucas Cranach, the well-known friend of Luther, Melancthon, and Frederick the Wise; of course we see the works executed under the art-loving Emperor Maximilian; Hans Burgmair's well-known "Triumph," and his friend, Hans Chauflein's *Theuerdack*, or some of the rare copies of the saints of the imperial family; perhaps more than one work by that crowd of engravers of Maximilian's court whose names have only so lately been determined?

Have we any work of Dürer's pupil, Hans Baldung Grün, the Swede, of whom Jackson, in his "Treatise on Wood Engraving," tells us that he kept by him all his life a lock of hair of his master Dürer?

Have we some work of Ulric Vaechtlein, Grün's contemporary, or of that list of German engravers, too long to describe, Jost Amman, Heinrich Aldegrever, Albert Altdorfer, Hans Sebald Beham, whose beautiful works collectors have so long prized? Holbein, of course, with his interpreter, Hans Lutzelburger, takes an important place?

So much for the early German wood-engravers, many of whom are better known as engravers on metal. Do we find described some rare print by the master of 1466, or of more than one other anonymous and modest artist of that "ancient" period? Martin Schongauer, of course, is represented by more than one of his well-known prints, and with him, Albert Glockenton, and Israel Van Mecken, whose works are so quaint and valuable as records of costume, as also those of Mair, while Dürer and the little masters, of course, are amply described?

And what "ancient engravings" of English origin can this portfolio contain earlier than the late Caxton Exhibition showed the world? Caxton, we are afraid, is our only "ancient" master, and of his works we cannot know too much.

With regard to French engravings, the portfolio cannot show anything more "ancient" than the rude block prints, playing-cards, and such-like, which possess more an antiquarian than an artistic interest. Perhaps we have some page torn from the rare publications of Antoine Verard printed by Dupré at the end of the fifteenth century, or the "Dance of Death" of the same publisher, of 1485, or the works of Simon Vostre of the same period; of Philippe Pigouchet, Kerver, Gilles, Hardouin, Eustache, Godart, or Regnault, whose works preceded and led the way to the Italian influence of the sixteenth-century Renaissance, of which, as sculptors, Jean Goujon and Germain Pilon; as architects, Jean Bullant, Philibert Delorme, and Pierre Lescot; as painters, Jean Cousin and Clouet (or Janet),—formed such noble interpreters, and afforded such excellent examples to the engravers. Among these it is to be hoped that the portfolio contains a specimen by "Petit Bernard" whose works met at the time with such vogue. Without numerous specimens of the beautiful art of the ornamentalist in the headings and tailpieces, and title-pages of the books of this period, the portfolio is wanting in a branch of the engraver's art that has at all times produced beautiful results; such works as the "Figures de l'Apocalipse" (Paris: Estienne Groulleau, 1547), and the translation of Francesco Colonna's "Dream of Poliphile" (Paris, 1546), in which are reproduced, and adapted to the French tastes, the exquisite woodcuts of the original work published at Venice by the Aldi in 1499.

The productions of the wood-engraver's art in France later than this become numerous, and can no longer be said to be "ancient." Among the engravers on metal it is possible to find not a few rare prints,—the Madonna with Christ, by Bernard Milnet, for example, and Breidenbach's interesting work on the Holy Pilgrimage to Jerusalem, published at Lyons in 1488, in which we see reproduced in copper-plate the wood-cuts published two years previously at Mayence. Nor should there be wanting a specimen of the work of Natale Garnier, copyist, as he is, of his German contemporaries.

Doubtless, there is fully described some work by Jean Duvet, of Langres, one of the earliest of French engravers on metal, perhaps the Martyrdom of St. Sebastian, or the Loves of Henry II.; or some work of Claude Corneille or Jean de Gourmont from Lyons, where, in the sixteenth century, flourished such a noble school of wood-engraving. Should the portfolio yield a print by Jean Cousin, it contains, indeed, an interesting collection, for in the few works by this archaic painter, we find all the elegance and noble expression, the truth and elevated sentiment, which breathe in the superb and sadly mutilated statue of Admiral Chabot, by the same artist, which forms so great a treasure of the Louvre Renaissance Court.

Into the fascinating field of French art and engraving in the sixteenth century our limited space will not permit us to enter. After having passed over as rapidly as so interesting a subject would permit the productions of the early engravers of Italy, Flanders, Germany, and France, we find ourselves fairly out of the "ancient" period of the history of engraving.

M.

IMPROVEMENTS IN HEAVY GUNS.

FEW names have the authority, on matters relating to Ordnance, of that of Colonel Sir W. Palliser. It is with some satisfaction that we find that distinguished officer expressing, in a letter to the *Times* on the 2nd inst., the same opinion on the cause of the explosion on board the *Thunderer* that we expressed in these columns on the occurrence of that disaster. Notwithstanding the care of the committee, and the reported unanimity of their conclusion, it has all along been to us, as it has been to Sir W. Palliser, simply inconceivable that the loading arrangements of the 38-ton gun should have been so defective as not to indicate the position of a projectile in its barrel by the distance of 5 ft., the space occupied by the charge.

Our object, however, is not to argue or to weigh probabilities; we have a question to ask, and it strikes us as somewhat incredible that no one should have yet proposed it. And we have a word to say as to that revolution in the construction of heavy ordnance which, according to certain newly-converted enthusiasts, will ensue from the fracture of the Armstrong gun.

The question is this. The charge of a 38-ton gun is not only a very bulky, but also a very costly affair. Five-and-twenty pounds sterling, we believe, is the least that each discharge costs. Even if this be an exaggeration, can it be the case that projectiles of such weight and individual value are simply pitched into the hold of a vessel like so many hundredweights of coal, more or less, and fired away as the captain may direct, without note or register? If so, we pay less attention to the arms on which our national safety depends than we do to penny-pieces in the revenue accounts. But if, as we would fain take for granted, a register be kept of the receipt and of the expenditure of warlike stores of this great value, why has not the simple process been adopted of counting the projectiles now on board, and comparing the number with that of the discharges? If there can be the possibility of making a mistake as to a monster charge of this kind, it is obvious that the gunnery accounts must be in an eminently unsatisfactory condition. A debtor and creditor account ought to be kept. If it is not, we beg to ask, on the part of the public, why it is not? If it is, we ask, whether there is an uncounted shot missing? The reply ought to be easy.

With regard to the constructive question, we are not about, with a former zealous advocate of the coiled gun, to wheel round and declare that ingenious mode of fabric to be against the principles of mechanism. Neither, on the other hand, are we disposed to admit that, having been once adopted in the service, this method must be taken as unquestioned and unquestionable. Two points of great importance yet await,—in our view,—decision. The one is, is it possible that the hydraulic loading apparatus can be such as to allow the men who use it to be ignorant of the position of the shot they put in a gun by as much as 5 ft.? If that be the case, the sooner the loading apparatus is turned overboard the better. The second is, arriving as best we may at the estimate of the force that rent the gun asunder, would a steel gun have been rent by such a force? We are making rapid strides in the manufacture of steel,—far

more so than in that of ordnance. The iron age of the world is on the wane. Iron is almost played out, or only to be valued (as Telford valued rivers as feeders of canals) as the material for making steel. We have various kinds of mild steel now procurable at half the price per ton that we have known paid for iron rails, if not for less. We have yet to hear the last word of Sir Joseph Whitworth's method of casting steel under pressure. The interest of the House of Commons, on Wednesday, the 2nd of April, was vividly excited by the samples of Cleveland steel adroitly sent for their information. While we would deprecate any hasty action or any interested cry against the massive and costly weapons of which we now lament the first very alarming failure, we must remember that the case of Steel *versus* Iron, if hitherto unsettled, will be brought into Court again, and that the question of the future is not likely to be, "Shall we make iron guns or steel guns?" but, "What steel should be used for our heavy ordnance?"

In this state of inquiry, it will be with much satisfaction that men interested in mechanics will hear of the appointment of a new committee on heavy guns, to consist of two naval officers, one Royal Engineer, three Royal Artillery officers, and one officer of the Indian Artillery; with the indispensable proviso that none of these officers shall have any personal or pecuniary interest in the manufacture of ordnance. The question whether a better gun can be obtained is one as to which we are promised that a most searching examination will be made. Of course, the question of material will be one of the very first to attack. The statement of Lord Sudeley to the effect that a new 6-in. 4-ton gun has a greater penetrative power than an old 9-ton gun (old by ten years), and a new 11-ton gun more power than an old 35-ton gun; and that, while the projectile from an old 18-ton gun would pierce the sides of the *Hercules* at 500 yards, one from the new 11-ton gun would produce the same effect at 2,000 yards' distance, is extremely suggestive. It points to the fact that the penetrative power of a shot, and its battering power, or the total force of its impact, are two different things. It is the former, it seems to us, that is the chief requisite for naval ordnance. The question of breech-loading ordnance, to which the coiled gun system was opposed, will also come before the committee. When we find that a person possessed of the official knowledge of the Duke of Somerset "two years ago thought that the guns of the navy were models of construction,"—an opinion which his grace does not say that he has yet modified,—it is evident that very much good work may be expected from a committee of men "possessing the broadest views, and special competence to form and express an opinion." The reports, we are glad to observe, will be made direct to the Admiralty and to the War Office, and inventors whose inventions are under consideration will be communicated with by the committee.

A PAPER DOME FOR AN OBSERVATORY.

AN astronomical observatory has been erected for the Rensselaer Polytechnic Institute, U.S. In maturing the plans and supervising the erection of the building, says Professor Greene in the "American Journal of Science and Arts," I have introduced an improved method of constructing revolving domes, a brief account of which may not be without interest.

While making the preliminary inquiries, I ascertained that a dome of the dimensions required, constructed in any of the methods in common use, would weigh from nine to ten tons, and require the aid of cumbersome machinery to revolve it. It therefore occurred to me to obviate this objection by making the frame-work of wood, of the greatest lightness consistent with the requisite strength, and covering it with paper of a quality similar to that used in the manufacture of paper boats; the principal advantages in the use of these materials being that they admit of great perfection of form and finish, and give extreme lightness, strength, and stiffness in the structure,—prime qualities in a movable dome. A contract was accordingly made with Messrs. E. Waters & Sons, of this city, the well-known builders of paper boats, for the construction of the dome, and they have carried out the undertaking with great skill and success.

The dome is a hemisphere with an outside diameter of 29 ft. The frame-work consists primarily of a circular sill which forms the base, and two semicircular-arch girders set parallel to each other, 4 ft. apart in the clear, and spanning the entire dome. These are firmly attached to the sill and kept in a vertical position by means of knee-braces. The sill and girders are of seasoned pine, the former being 8¼ in. wide by 3½ in. thick, and the latter each 4½ in. by 3 in.

The paper covering of the dome is made in sixteen equal sections, such that when set up side by side, their bases on the sill, and their extremities meeting at the top, they form a complete hemispherical surface. The frame-work of each section consists of three vertical ribs of pine, each 3¾ in. in width, and ¾ in. thick, one at each side, and one midway between, and meeting at the apex. The paper was stretched over this framework as follows:—A wooden model of full size being made of that portion of the dome included within one of the sections, with a surface truly spherical, the framework of a section was placed in its proper position on the model, so that its outer edges formed part of the same spherical surface, and covered with shellac where it was to be in contact with the paper. The sheet of paper cut in the proper form was then laid on the model while moist, the edges turned down over the side ribs, and the whole placed in a hot chamber and left until thoroughly dry. In this way the several sections were dried in succession over the same model. The paper used is of a very superior quality, manufactured especially for the purpose by Messrs. Crane, Brothers, of Westfield, Mass. Its thickness after drying is about one-sixth of an inch, and it has a structure as compact as that of the hardest wood, which it greatly excels in strength, toughness, and freedom from any liability to fracture.

After being thoroughly painted, the several sections were ready to be set up side by side on the sill, and connected together by bolting through the adjacent ribs. The space between the arch girders being left uncovered on one side from the sill to a distance of 2 ft. beyond the zenith, the upper ends of the sections required to be cut off and accurately fitted to the girders. The joints between the sections were made weather-proof by inserting a double thickness of heavy cotton saturated with white-lead paint. The adjacent side ribs were then bolted firmly together through the paper and cloth, the lower ends attached to the sill by angle irons, the upper ends bolted to the girders, and the lower edge of the paper turned under the sill, and securely nailed. The joints were afterwards painted over on the outside. As the entire surface exposed is free from nail-holes or other abrasions in the paper, the structure promises, with an occasional coat of paint, to last for many years, and to form an effective and serviceable roof.

The 4-ft. opening between the arch girders is covered by a shutter, which is also of paper stretched over a wooden frame. With the exception of about 2 ft. at the lower extremity, this shutter is in a single piece. Attached to its sides are a series of iron rollers, which run on a railway track of band iron laid down on the girders, by which means the shutter can be moved to the opposite side of the dome. The wooden sides of the shutter have iron flanges attached to their lower edges, which project under the railway tracks, making the whole weather-proof. The shutter is opened and closed by means of a windlass and wire rope.

The weight of the dome and its appurtenances is about 4,000 lb. It is supported on six 8-in. balls, which roll between grooved iron tracks, and can be easily revolved by a moderate pressure applied directly, without the aid of machinery.

ARTISANS' DWELLINGS.

AT the weekly meeting of the Metropolitan Board of Works on the 4th inst., a report was submitted by the works and general purposes committee, reporting, with reference to the letter from the Home Office transmitting a copy of a letter from Sir Sydney Waterlow, and an altered form of tender for sites for artisans' dwellings under the Metropolitan Street Improvements Acts, 1872, that, in the opinion of the committee, it would be desirable to insert a proviso that the Superintending Architect may extend the time for completion of buildings in cases of strikes, lock-outs, or unfavourable weather, but that they consider it inexpedient to assent to the remainder of the proposed alterations; and recommending that the Home Office be informed accordingly.

Mr. E. Dresser-Rogers, in moving the adoption of the report, remarked that on more than one occasion, at the request of the parties desiring to tender for this land for the purposes of artisans' dwellings, the Board had revised their conditions, and had met the parties in a most liberal spirit. Again representations were made by this particular company, and the committee having gone into the matter once more, recommended some further concessions. He was quite sure the Board had an earnest desire to give every possible facility for the erection of improved dwellings for the artisan classes; but at the same time he thought the ratepayers ought to know that the cost of these dwellings would come out of their own pockets to a very large extent. The conditions were so prejudicial to the interests of the public that a very large portion of the cost must necessarily fall upon the rates. The Board, however, was disposed to help on the matter in every way as far as possible. The motion was carried.

THE NEW NATIONAL THEATRE, COPENHAGEN.

THE erection of a new National Theatre for Copenhagen at one time was a question exciting great interest amongst the inhabitants of the Northern capital. However, its solution was satisfactorily effected, as our readers will be able to judge by the illustration we give in this issue of the handsome building provided, the designs for which were supplied by the architects Vilhelm Dahlerup and Ove Petersen.

The edifice, the appearance of which is well represented by our illustration, may be divided into three parts,—the theatre proper, the centre block, and the part of the building containing shops and warehouses. The theatre itself has three principal entrances in the great façade turned towards Kongens Nytorv (King's square), through which the portico is reached, where the ticket office is placed. From the portico three doors open into the vestibule proper, whence a broad staircase leads up to the boxes. Three corridors connect the vestibule with the *foyers*, which enclose in a semicircle the auditorium of the theatre.

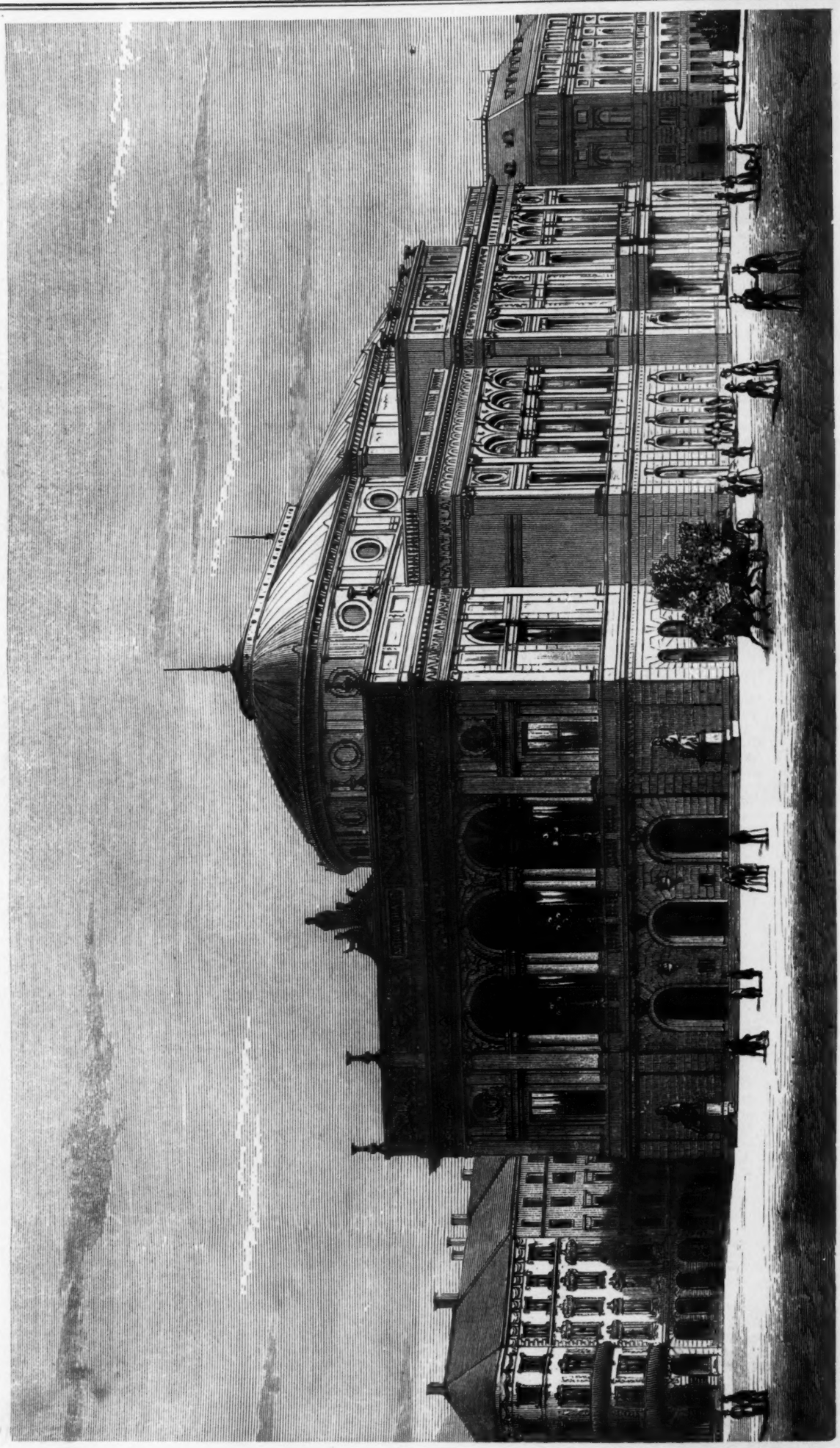
In the centre portion of the lateral façade, there are covered approaches for carriages, staircases leading from the vestibule to the first and second tiers, and from the side turned towards Tordenskjold-street a separate staircase to the royal box. A great staircase leads from the *foyer* already mentioned to the several floors, in such a manner that the first and second tiers have a common staircase, while the third tier and the gallery have two staircases each and special exits to Tordenskjold-street and towards the Hôtel du Nord. Cloak-rooms are provided in all the *foyers*, as well as refreshment-places on the several floors. Sitting accommodation is provided for about 1,700 persons.

The stage is 80 ft. wide, and is supplied with every arrangement for promptly suppressing fires. Round it are grouped, in the various floors, dressing-rooms for actors and supers, with rooms for singing and dancing classes. Behind the stage are *foyers*.

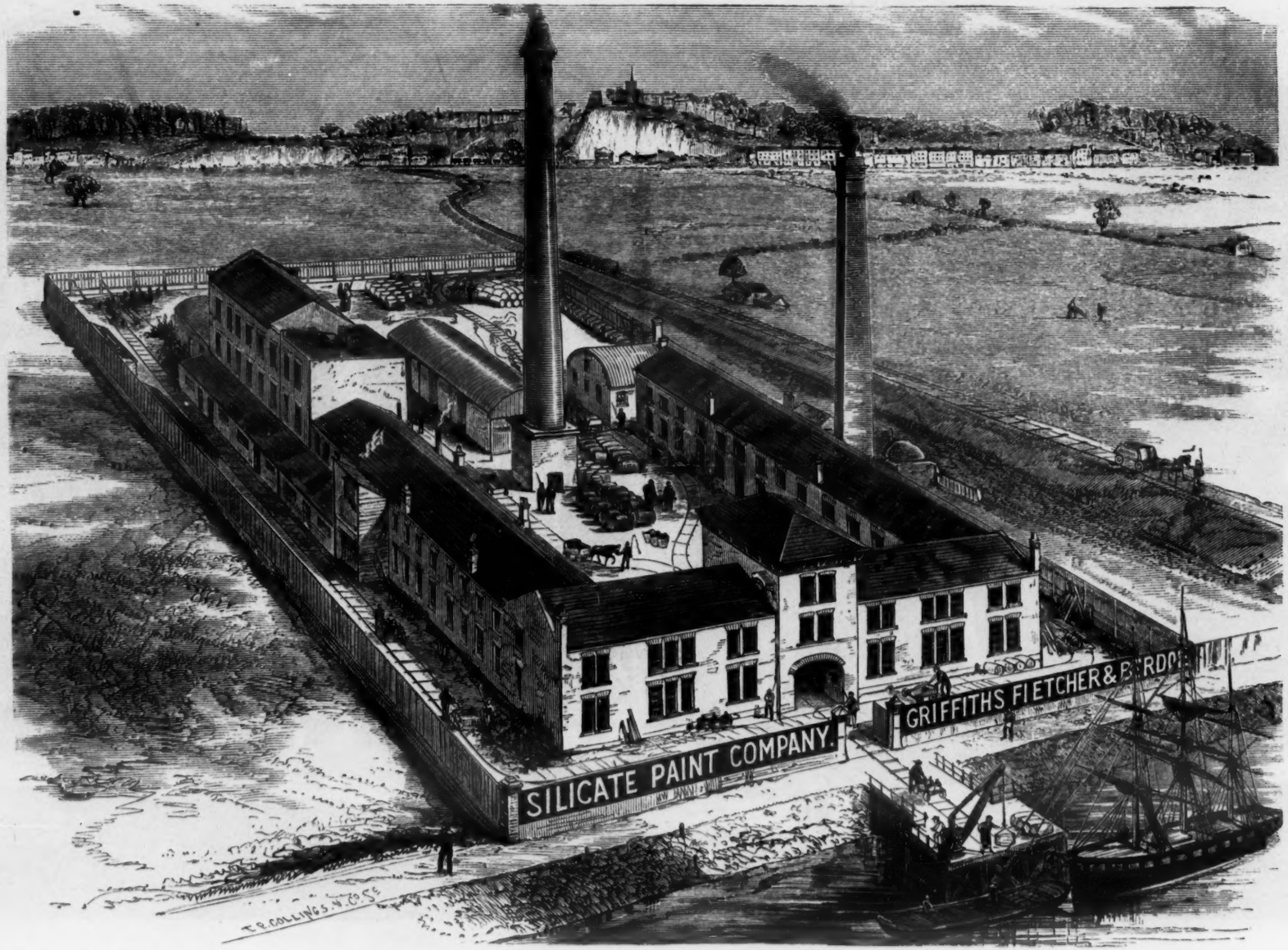
The intermediate building is placed athwart Heiberg-street, in such a manner that a wide drive for carriages and two smaller passages lead from the Hôtel du Nord to Tordenskjold-street. In that part of the building we also find dressing-rooms and spacious corridors connecting the property-rooms with the stage.

The part of the buildings appropriated principally for warehouses contains on the ground-floor shops facing towards Tordenskjold-street and the Hôtel du Nord. In the mezzanine story are placed the offices of the theatrical management. A concert-room with entrance-hall is also provided in this part of the building. In the remaining stories there are, besides painters' rooms and carpenters' shop adjoining, wardrobe-rooms and tailors' shop. The warehouse buildings abut immediately against a neighbourhood crowded with buildings.

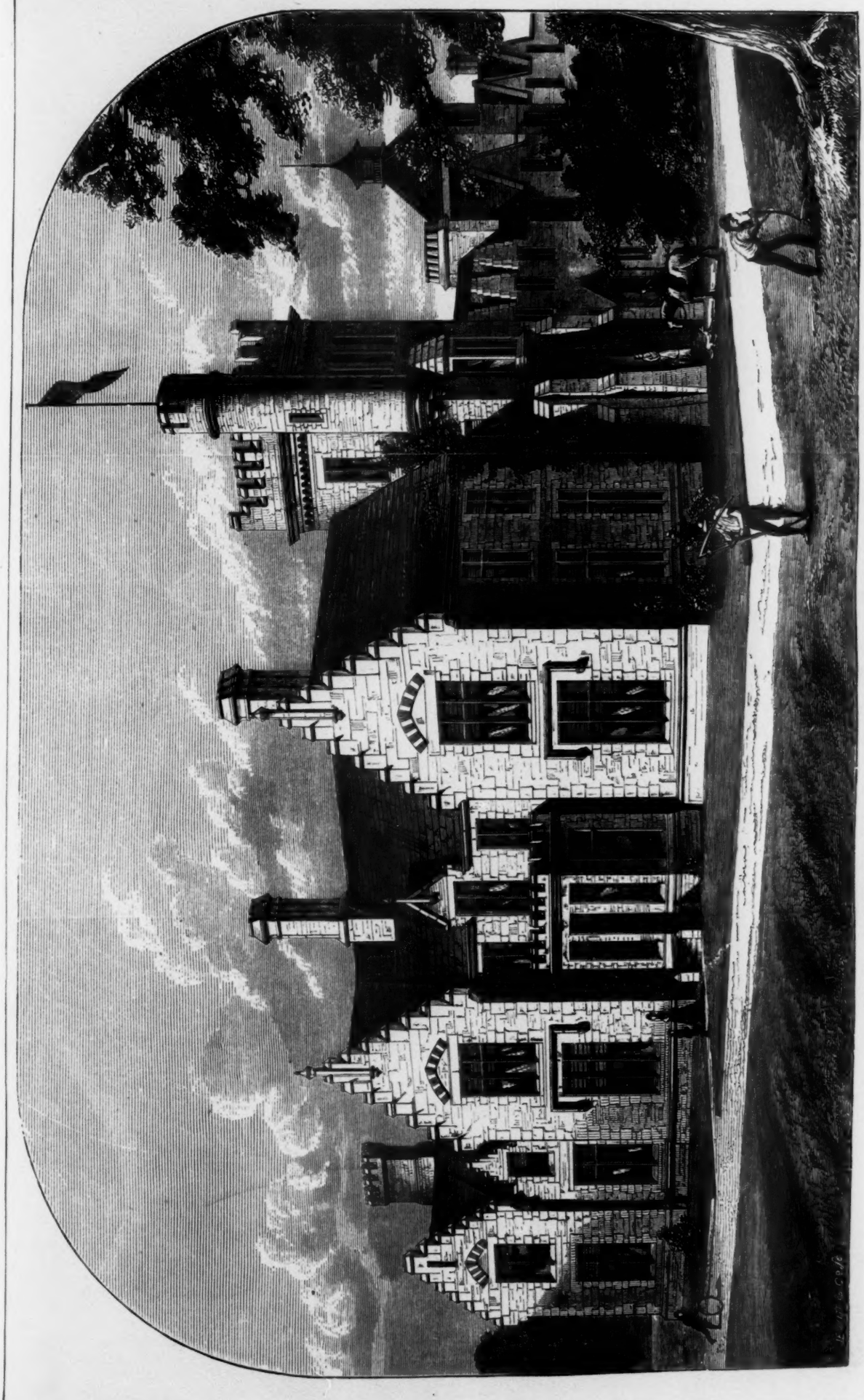
Value of Land.—Property in Croydon, known as the Friends' School Estate, was sold by Messrs. Podmore & Martin at the Mart on the 2nd inst., in two lots. Lot 2, 8a. 1r. 16p. of freehold building land, near East Croydon Station and the High-street, sold for 13,750*l*. Lot 1, while including school buildings covering an area of more than 14,000 superficial feet, and a number of dwelling-houses and shops, brought 14,050*l*.



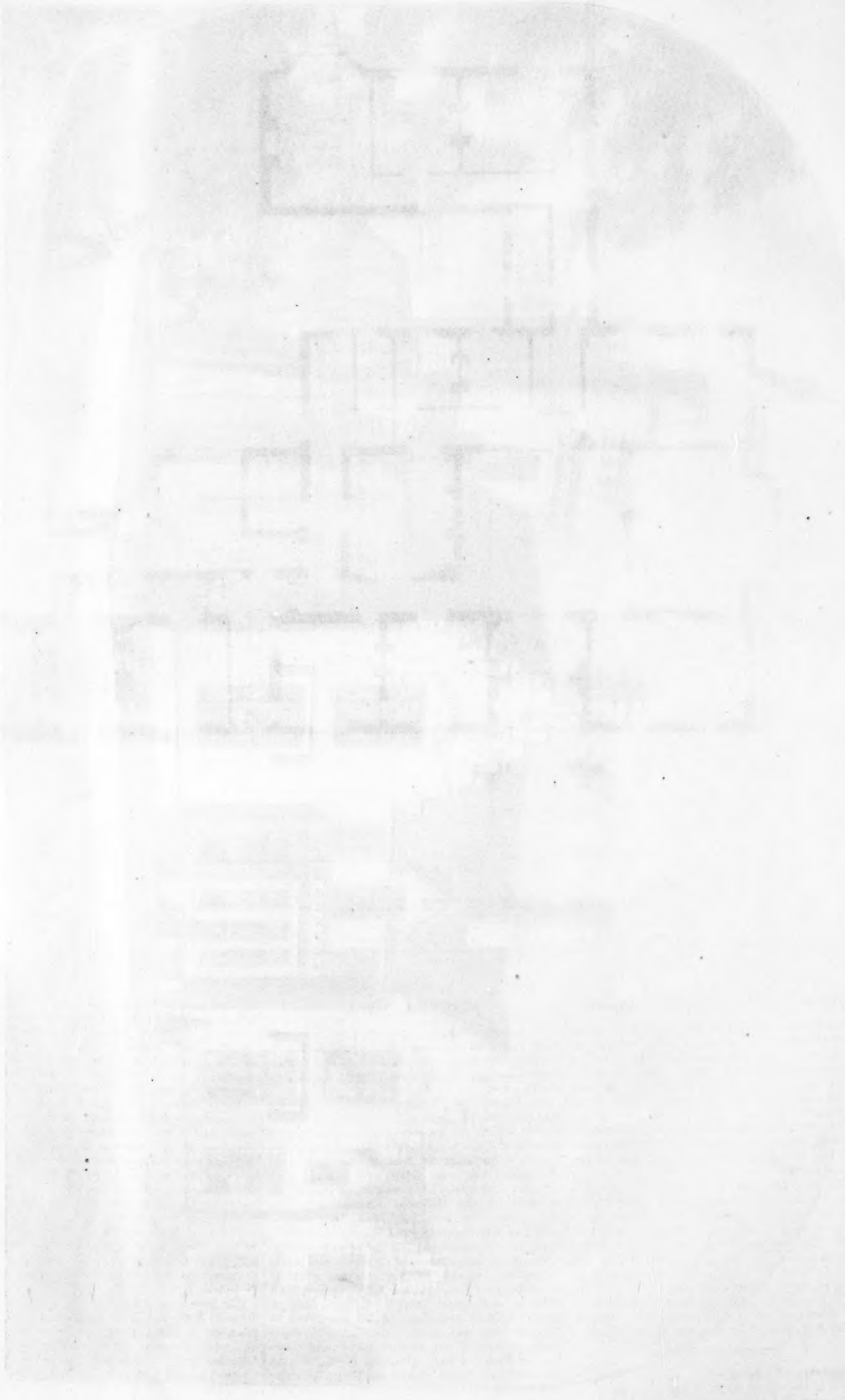
THE NEW THEATRE, COPENHAGEN.—MESSRS. VILHELM DAHLERUP AND OVE PETERSEN, ARCHITECTS.

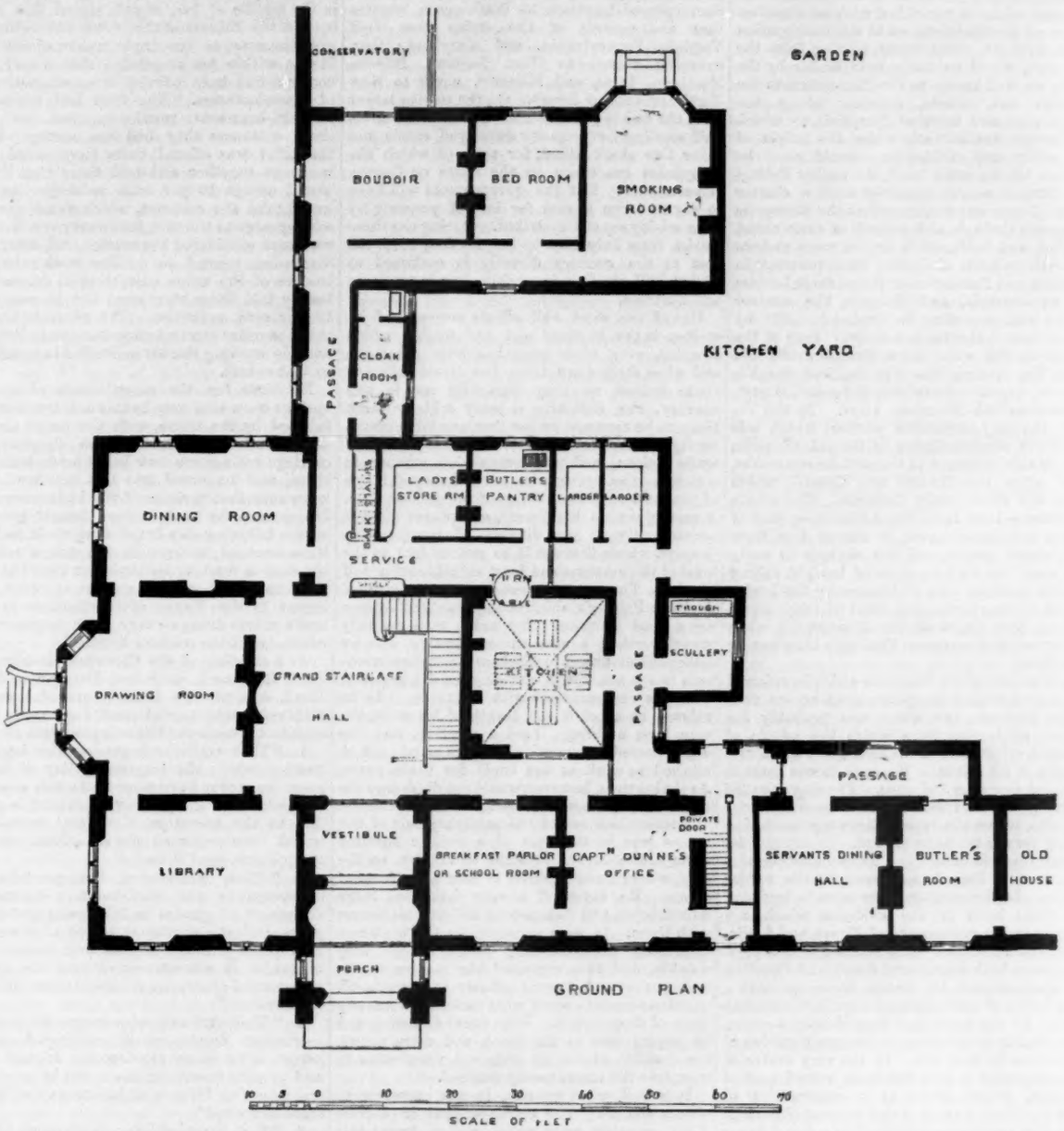


NEW WORKS OF THE SILICATE PAINT COMPANY (FOR THE MANUFACTURE OF SANITARY PAINTS), CHARLTON, NEAR WOOLWICH.—[ADVT.]



BRITTAS: QUEEN'S COUNTY, IRELAND.—Messrs. Millar & Symes, Architects.





BRITTAS: QUEEN'S COUNTY, IRELAND.—*Plan of Ground Floor.*

BRITTAS: QUEEN'S COUNTY, IRELAND.

THE mansion known as Brittas, shown by the accompanying illustration, is being erected for the heirs of the late Captain Dunne, and is situated in the Queen's County, Ireland, in the centre of a large old well-wooded demesne, commanding an extensive and beautiful view of the surrounding country.

The new house replaces a one-storied thatched building, which, in its day, was very picturesque, and for ages had been the residence of the Dunne family.

The new building is faced with punched stone, having cut-stone dressings. The ground floor contains the usual suite of rooms for a house of its kind, all the rooms being large and lofty. The hall and stairs are lighted from the roof, as is also the kitchen, which is only one story to allow of ventilation. The upper floor contains about fifteen bedrooms.

The present contract has been undertaken by Mr. Morris, of Sligo, for about 7,700*l*. Messrs. Millar & Symes, of Dublin, are the architects.

Society of Arts.—Mr. H. B. Wheatley (clerk to the Royal Society) has been appointed to the post of Assistant Secretary of the Society of Arts.

ETRUSCAN TOMBS.

IN connexion with a paper on an Etruscan tomb found at Palestrina by Signor Barbarini in 1876, read before the British Archæological Association, by Mr. Thomas Morgan, F.S.A., on the 2nd inst.,

Dr. Phené, after drawing attention to the fact that the tomb, though Etruscan, was, like several others which he enumerated, in the ancient country of Latium and not in Etruria, illustrated by drawings made by him on the spot plans of ancient Etruscan cities, and elevations of different examples of construction in them, as well as the different classes of tombs, viz., those cut into the sides of natural hills, and subsequently intentionally concealed; those carved externally, on the face of vertical cuttings on hill-sides, and which were made decorative features of the various districts in which they are, whole valleys having their sides so sculptured in the artificial face of natural hills of rocks, and which assimilate to those at Telmessus, in the south of Asia Minor,—these, he pointed out, abound in the neighbourhood of Castel d'Asso, Norchia, Bieda, &c., in the districts between Viterbo and Civita Vecchia; and finally the artificial tumuli or mounds of enormous dimensions, surrounded in Etruscan examples, with a wall of masonry, with doors around leading to chambers and passages, but which also like the splendid examples at Agylla, Cœre, or Cervetri, between Rome and Civita Vecchia, had concealed chambers like those in the pyramids of Egypt, and the mounds at Sardis, in Lydia, while the façades and architectural decorations of the valley tombs were entirely deceptive, the doors having no means of opening, and the entrance being effected by small and often concealed apertures beneath them or at the side of a chamber. After exhibiting drawings of the frescos and devices in the different tombs, Dr. Phené showed, also by drawings made on the spot, the similarity between the latter constructions and some in Lydia, near Smyrna, so that the façade decoration and the tumulus both had their counterparts in Asia Minor, which lay between the far East and Italy, and each of which had again their counterparts in the topes and sculptured rocks of India.

The first class appeared the most ancient of those of Etruria, viz., the carved and concealed chamber in the natural hill, generally a round one, which was probably adopted by the Pelasgic Colonies from Greece, prior to the occupation by the Pelasgic Lydians. All the three classes of tombs abounded in serpent emblems of a very marked character, and many facts, not, he believed hitherto considered, led him to think

that the disputed points about the Pelasgi and Etrurians might be reconciled without abandoning any of the traditions as to the immigration of the Lydians. The latter, coming from the south-east, would naturally bear across by the islands so well known to the Phœnicians to the Tyrrhene Sea, where, coasting along, the ancient port and town of Tarquinii, to which the Tuscans traditionally refer the origin of their polity and civilisation, would soon be reached. On the other hand, the earlier Pelasgi from Greece would probably seek a shorter course. There was evidence that the Etruscans had passed through, and indeed, in some cases, occupied and built, cities in the more eastern and southern parts of Italy. Their presence in Tusculum and Palestrina or Prænestè in Latium was an example, and Bologna, the ancient Felsina, was, according to tradition, built by them as one of the twelve cities. East of the Apennines, the well-known Roman roads, Via Appia, Via Latina, Via Valeria, and the Via Flaminia, appear to have been all formed, in part, at least, on old Etruscan ways. In the Via Appia the only serpentine portion, which was one of the characteristics of the old Etruscan roads, is that adjacent to the well-known tombs, called after the Horatii and Curatii, which tombs are undoubtedly Etruscan. The access to Western Italy from the Adriatic, by way of Foggia and Campobasso, is almost free from mountainous passes, and the voyager in early days would hardly lose sight of land, if, sailing from the western part of Greece by the Ionian Islands, he sought the east coast of Italy, as we moderns now do, or as the Romans did when they formed the enormous Via Appia terminating in Brindisi.

In that part of the Morea to which he referred was a very remarkable place, little known even to the ancients, and which was probably the ancient settlement from which the people of Messenia originated. Pausanias gives a doubtful account of its origin. He says it was built in the third age after Pelasgus. The city is called Phigalia, and was said to have been built by Phigalus, whom the superstitious represented as having sprung from the ground. In any case its antiquity was immense, and its secluded position kept it very little known, even to the earlier Greeks. In this strange place seem to be found just those links in the evidence which are wanting in the monuments of Egypt and Lydia. The Etruscan mounds often inclosed high towers. These were both square and round, and Phigalia, the place alluded to, stands alone as having these forms of towers placed together in ancient times. In the south-east part of Italy a somewhat similar round tower is in every garden of importance to this day. In the very centre of what appeared to him the most sacred spot of Phigalia, where there is a construction of masonry in the form of a vast serpent (drawings from the spot being exhibited) is a round tower similar to that of the Etruscan circular tumulus next to the two bearing the names of the Horatii and Curatii, and adjoining the ancient piece of road before mentioned, while natural tumuli, similar in appearance to the artificial Etruscan ones, appear, as the drawings illustrated, to have been highly respected at Phigalia.

Dr. Phené stated that, next in importance as containing these ancient tombs, after the localities he had referred to in Etruria, was the district formed by the triangle of the towns of Orvieto, Perugia, and Chiusi, drawings from all of which were exhibited.

SOME CAUSES OF THE PRESENT DEPRESSION OF TRADE.

IN the course of a paper on this subject, read by Mr. B. Francis Cobb, at the Society of Arts, on the 2nd inst., Mr. Andrew Cassell in the chair, the author said,—

Reference has been made to workmen going on strike, and while the subject of strikes is one which is more fitted for an entire paper than for such brief notice as time will permit of in this; yet it is obviously so important a factor that it would be improper not to mention it as one of the causes of the present depression of trade. The action of a strike is to resolve itself into the most absolute waste that can be connected with commerce and commercial enterprise. Among the actions within the control of men, only war can be more wasteful in its effects. It is so everywhere, although it is only of recent years that the United States has undergone this baneful experience. Speaking of the great railway strike there, Mr. Plunkett, Secretary of Legation at Washington, reports that the centres of the strike were West Virginia, Pennsylvania, and Maryland; they extended thence to Ohio, Indiana, Illinois, Michigan, Iowa, and Missouri, north to New York, last to New Jersey. On the twelve larger lines the loss is put down at five millions and a half sterling for property destroyed, cattle and other live stock killed, for none of which the companies can claim on the State or County Governments. But the governments will have to pay as large a sum for loss of property by riots arising out of the strikes. During the three weeks, from July 16th to August 5th, 1877, the cost to the country directly is reckoned at 13,000,000*l.* sterling in positive loss in property and business.

One of the most evil effects engendered by strikes is the ill-blood and bad feeling which remains, even after work has been resumed; and when strikes are from the direct action of trade unions, as they generally are in this country, the difficulty is only laid by for a time, to be resumed on the first available opportunity. The arbitrary action of many of these trade unions, and the submissive manner in which their orders are received and obeyed, is one of the most surprising things of the present time. A man gives up his liberty, and places himself unreservedly at the disposal of irresponsible despots, whose first act is to reduce him to the level of the meanest and least valuable artisan of his class. The union shipwrights who caulk ships' decks at Palmer's shipbuilding yards at Jarrow are a good instance. The union men recently struck against a man named Burdon, who by dilligence managed to distance his fellow workmen in the amount of caulking he did in a day, and was remonstrated with by them. As he refused to shorten the length of his work, the men took umbrage, held a meeting, and the union passed a resolution that he should not be allowed to work at the trade for three years. As the masters, however, would not discharge the man Burdon, the men were ordered out on strike.

Another instance of the arbitrary rule of the unions was in the case of a builder building some houses in the suburbs of London, on the clay, where he had reason to fear the effects of damp. He invented a very ingenious large hollow brick, and commenced building his houses with them. It soon occurred to the workmen that they were building these houses very quickly, and they reported the matter to the union, who sent special officers to investigate, on whose report orders were sent not to use any more of those bricks. With great difficulty, and by paying fees to the union and extra wages, the builder at length obtained permission to complete the house nearly finished.

It is well, when we can, to see ourselves as others see us. The correspondent of a New York monthly publication writes from this country as follows:—"There can be no doubt that the original and principal cause of the depression in all the branches of industry in England is directly traceable to the arbitrary regulations of trade unions, which have acquired a much more perfect system of organisation here than anywhere else." He traces their development in recent years, and states the general results, and adds, "a yet more serious cause serves to enhance the cost of production, and is one result of the arbitrary regulations of the trade unions. I refer to a system of virtually handicapping labour by a rule which does not allow a unionist to work with a will. However much skill he may possess, or however willing he may be to work rapidly, he is forbidden to accomplish more than an average amount of work in the usual time, because it might derogate from the interest of his less skilful or less willing brother unionist. The same regulation exists in all trades where it is at all practicable." The writer further expresses his opinion that "the English seem to be in such a perfect state of lethargy that they cannot or will not realise that their manufacturing monopoly is fast vanishing from them, and that the nation which is acquiring it shows a very fair prospect of retaining it."

Of course we may say that this last is an American way of putting it for publication in a New York journal, but there is the fact that the Americans are manufacturing goods which they previously purchased in this country, they are bearding the unionistic terrorism of Sheffield on its own ground, and they have entered the lists as our competitors in almost every foreign market in the world.

The Mayor of Sheffield, in a speech made only in the middle of last month, stated that in his opinion the distress of that town was owing in a great measure to the trade unions of Sheffield. It was within his knowledge that a very large contract had been offered to an extensive firm of manufacturers. The firm had taken two similar contracts previously, and on both those contracts they had lost money. When the third was offered them they called their workmen together and told them that if they would accept 10 per cent. reduction the firm would take the contract, which would give full employment to the men for twenty weeks. The workmen considered the matter, and, after some discussion, agreed to do the work; but the leaders of the union now stepped in, and distinctly told them they were not to accept the 10 per cent. reduction. The consequence was that the order is now being executed in Belgium, and the working classes in Sheffield are suffering to that extent.

Machines for the manufacture of carriage springs were sent over to this country, but were tabooed by the union, with the result that the machines were sent back to Belgium, and carriage-springs are now being made with them there, and imported into this country. It is known also that "grinders" who had been working longer than the trade unions thought good, had on the following day found that their tools had been removed, because of the action taken by the men in working longer hours than the union permitted. It was a matter of very great regret to the Mayor of Sheffield, to find the trade unions doing so very much to prevent the expansion of the trade of Sheffield.

At a meeting of the Cleveland Institution of Civil Engineers, held last December, Mr. J. Head, one of the leading manufacturers of Middlesbrough, moved and supported by an excellent speech the following resolutions:—

1. "That whilst recognising the important bearing which the Imperial policy of Government must ever have upon trade, this meeting is of opinion that the present depression is mainly due to the operation of natural laws, which would have produced similar effects whatever the political conditions."

2. "That, considering the prevalence of extravagance and thriftlessness among producers of all grades in 1870 and the following years, and the enormous waste of time which took place through strikes and restrictions of unions, it is not surprising that the spirit of commercial enterprise should have become well-nigh extinct."

3. "That the only wise course for producers—whether employers or employed—now to adopt is to cease craving for higher prices, and to unite in cutting down cost of production, and adapting ideas and habits to the existing state of things."

4. "That the nine-hours movement, although nominally a success, was in reality, from the first, a great economic failure; that is, contrary to the true interests of the workmen themselves. That the present scarcity of employment is largely due to its operation, and that it ought to be abolished without delay."

I wish to draw your attention to these resolutions, although the third may be foreign to the subject of this paper—which, I must remind you, deals only with causes, not cures; but time will not permit of any comments upon them to-night.

Wakefield Borough Surveyor.—Mr. John Pagan, C.E., who for more than four years past has occupied the position of borough surveyor under the Wakefield Corporation will, at the end of the present month, retire from that position, in order to undertake higher, though similar duties, in widely different scenes and circumstances, he having been selected by the Colonial Office, out of a number of candidates, for the post of Colonial Surveyor and Head of the Public Works Department in the Colony of the Gold Coast. The salary attached to the post is 800*l.* per annum, along with free passage, while free quarters are provided. As there is urgent need for the office to be filled, Mr. Pagan will probably leave England in the early part of May. It may be mentioned that his term of office here has witnessed the inauguration and completion of many works, which, if small in themselves, have been of great importance in the aggregate, such as the paving of streets, the extension of the main drainage system, and others.

THE NEW WORKS OF THE SILICATE PAINT COMPANY AT CHARLTON.

On Monday last the new and extensive works erected by the Silicate Paint Company at Charlton were "inaugurated" by a visit of inspection paid to them by a number of gentlemen representing some of the sanitary and scientific associations, together with many representatives of the press. The new works, which are situate on the Kentish bank of the Thames, just above Woolwich, have been erected at a cost of 25,000*l*., from the plans and under the superintendence of Mr. Ernest Turner, architect. They may be roughly described as forming three sides of a parallelogram, partially enclosing a quadrangular space, in the centre of which are a tall chimney-shaft and a number of furnaces for calcining the material produced. The works cover nearly an acre of ground, and although they are capable of turning out 50 tons of "Griffiths's patent white," and 50 tons of silicate and enamel paint per week, the premises will, it is thought, have to be enlarged before very long, owing to the rapid increase in the demand for the company's productions,—a fact which speaks volumes for their excellence. Space is reserved for the contemplated extension of the premises. The works are replete with the newest and most approved machinery for grinding and mixing the zinc white and the various coloured pigments, and the visitors spent some very instructive hours in going through the various departments. One room is devoted to the production of the company's well-known and exceedingly valuable "petrifying liquid," for excluding damp and moisture from walls. This preparation is made with silica, gums, &c.; and at the far end of the room were seen the huge vats where the ingredients are mixed and stirred by steam power. Nearer at hand are some disc grinding-mills, where the preparation, which has now the appearance of a thick paste, is ground and rendered more pliable. It is mixed with water or oil, and can afterwards be diluted, at the purchaser's pleasure, with either oil or water, or both together, and is then used as a stable non-poisonous distemper. This liquid has been used in the School Board schools, and at a great number of hospitals, workhouses, and infirmaries. The eastern wing of the manufactory contains a great number of granite edge-runners and other grinding and mixing mills. Separate shoots, descending from the room above, supply the ingredients to each mixer. In this upper apartment, which was subsequently visited, are some curious revolving brushes for mixing the powdered colours; and, when this has been accomplished, they are poured into the shoots, together with the requisite amount of oil, so that the machines below are constantly and regularly fed. In the upper room are also a number of large, but somewhat shallow, drying-trays, 30 ft. long, heated by steam, whereby the moisture remaining in the material they contain, is evaporated. To return to the room below, it will be found that the paint powder, as it falls into the mixer, and before it has had time to combine with the oil, occasions a slight fine dust, which gradually permeates the air, settles on the clothes of the workmen, and would most infallibly injure them if it contained lead. This dust, though its constant inhalation is not to be desired, is in itself, according to remarks made by Dr. Bartlett at the subsequent *déjeûner*, as innocuous as flour-dust. In this room, also, by the side of huge stone-crushers and a new style of granite roller-mills, may be seen a duplicate of the small hand-mill with which this great industry was started. Beyond, but still in the same wing of the building, is the machine-room, with one of Clayton's large and powerful horizontal engines; while in a neighbouring compartment are three large Cornish boilers. The production of "Griffiths's Patent White," which is manufactured by the Silicate Paint Company for Messrs. Griffiths, Fletcher, & Berdoe, commences on the roof of the factory. On all sides are enormous lead-lined tanks, fully exposed to the air, and resting on the firm iron and concrete roof. Indeed, the whole of this part of the building had to be constructed on purpose with these materials, so as to support the enormous weight of the raw material, much of which, in the shape of stacks of old roofing zinc, was stacked ready for conversion into paint. Sulphuric acid, which is used in large quantities for dissolving the zinc, is double the weight of water. This acid and also muriatic acid are blown by an air-pump from below into the tanks through vulcanite pipes. The solution thus obtained is conveyed to another series of tanks in the room below, where the iron and other impurities are taken from it by a process which is a chemical secret. These impurities form a sort of "cake" at the bottom of the tanks. This has to be removed at stated intervals, when it is placed in a peculiar kind of press, which is used for extracting whatever zinc may be remaining. In a side room there are some enormous iron vats, in which chemical compounds are boiled by the action of steam; and then, descending to the next floor, troughs suspended from the ceiling, convey the zinc liquor into another series of tanks. The period has now arrived when the liquid zinc must be reconverted into a solid substance; and, for this purpose, it is mixed with a preparation containing sulphur, &c., and a precipitate results. Descending to the ground-floor, the precipitate is collected into large wells, whence it is pumped by steam-power into filter-presses. The pressure in these machines is 30 lb. to the square inch; and, after a little of this treatment, the cakes of solid "White" are removed. It now possesses something like the body with which the paint is made, but the process is far from finished. The cakes of the zinc precipitate must be burnt to nearly a white heat in furnaces erected in the centre of the yard, and then thrown, while hot, into cold water. Thus a hard, white, and innocuous substance is obtained; but it has to be rendered manipulable. For this purpose it is first placed into wash-pans, where it is stirred and levigated until no impurities remain. The powder, after this, is consolidated once more by being passed through another series of presses, where the water is squeezed out. From these last, or finishing presses, the cakes of white pigment are conveyed to a large drying-room, where they are exposed on iron racks capable of holding seventy tons of the pigment, which has now become the celebrated "Griffiths's Patent White." It need only be mixed with oil to be ready for use, and we have a non-poisonous paint of the purest white, possessing far greater body than the lead paints which, on sanitary grounds alone, it ought to supplant. "Griffiths's White," unlike white-lead paint, never becomes transparent, but always retains its opacity; it will not yield to the action of noxious gases or of sulphuretted hydrogen; it will not blister, even when heated in a furnace, and therefore will stand any climate, and is consequently specially adapted for the painting of ships, iron structures, walls of hospitals, houses, &c. On the opposite side of the furnace and the yard, a fireproof and separate building, made of iron and concrete, may be visited. In this workshop the "enamel paints" are manufactured. For this a copper was originally employed that held three gallons; now the coppers hold 100 gallons, and are constantly in use. We cannot detail the progress of this manufacture, as it is a secret process; but we understand that the enamel paints are made by an adroit combination and skilful manipulation of silica and extremely hard gums. The west wing of the building is divided into various rooms for packing and storing the paint, but there is also one room where the colours, all of them non-poisonous, are made. They comprise, among other shades, some emerald-tinted greens, free from arsenic. The drying-room, which is close at hand, can hold twenty tons of colour. In this part of the building there is also a chemical laboratory, where experiments and improvements are constantly attempted and samples analysed by the company's chemists. The varnish-room is kept at an even temperature by steam-warming pipes that run round the fifteen five-hundred-gallon vats. Tramways run in all directions to facilitate the conveyance of these goods from the various parts of the building and along the pier jutting out into the river from the northern frontage of the premises. Goods can thus readily be shipped for foreign countries, or taken by barges to the Company's London wharf (Dowgate Wharf). The railway station is also close at hand; and, on the whole, it is doubtful if a better site could have been chosen. The contractors for the erection of the premises were Messrs. Vernon & Erving.

The visitors were courteously conducted over the premises by Mr. Griffiths, assisted by Mr. Lucas (the company's chemist), and Mr. Knight (the foreman of the works), from all of whom the visitors received much information as to the details of the processes of the manufacture of the company's products. Mr. Griffiths, after exhibiting some of the paints manufactured by the company, amongst others the "Silicate," in its various shades and colours, and also some beautiful enamel paints that have the appearance and gloss, and almost the hardness, of porcelain, showed the visitors a series of experiments with his latest production, "Griffiths's Patent White," or Sulphide of Zinc Paint. After explaining that there were five cardinal points to be observed in a really valuable paint,—its covering power or "body," its opacity, its whiteness, its power to retain that whiteness in the presence of gases, and its durability,—the great covering power of this paint, in contrast with pure carbonate of lead, was clearly shown on four boards painted black, and of equal size, each measuring 46 square feet. Exact weights of pure carbonate of lead and of three different qualities of the "Patent White" were weighed out and oil added. A decorator then applied them to the boards with the following results:—

	Covering Power.
The White Lead and oil actually used weighing	9 oz.=100 per cent.
Griffiths's Patent White, marked A, actually used weighing	5½ oz.=180 ,,
Griffiths's Patent White, marked B, actually used weighing	5 oz.=189 ,,
Griffiths's Patent White, marked C, actually used weighing	4½ oz.=236 ,,

The opacity of the lead was manifestly inferior to any of the other three samples. The colour of the boards when covered with Griffiths's paint was of the purest white, the one covered with white-lead looking quite yellow by its side. Then came the question of its permanence of colour, and this was clearly shown by Mr. Griffiths in some further experiments. Boards painted with lead and the "Patent White" were subjected to the action of sulphuretted hydrogen gas, which quickly turned the lead a dark brown or coffee colour, but the "Patent White" was unaffected in the least. The durability of the pigment to resist heat was as fully demonstrated by two pieces of iron being coated with lead and the new white, and then put into a red-hot furnace for a few minutes. The lead entirely disappeared, but "Griffiths's Patent White" came out from this severe test perfect in colour and in substance.

At the *déjeûner* which followed the inspection of the premises,

Mr. Griffiths, the senior partner, presided.

Mr. Chaloner (editor of *Iron*) and Dr. H. C. Bartlett, F.C.S., spoke, from practical experience, in the highest terms of the excellence of the products of the company, as also did a gentleman from the Royal Arsenal, at Woolwich, where these paints are being at present used; and

Mr. Griffiths, responding to a toast given in his honour, said:—I have to thank you on behalf of myself and partners for the honour you have conferred upon us by a visit to our works, and I take it as a proof that you recognise the efforts we are making in the cause of sanitary science. No doubt many of you are aware that this company does not allow poisons of any description to enter into the composition of its paints, and therefore the tenant need have no fear as to the health of his family when the Spring painting begins. The working painter will not be absorbing an accumulative poison into his system, which will undermine his own health and that of his little ones, nor will the men engaged in the manufacture of these pigments shorten their lives as is the sad case in works where lead pigments are produced. I lately heard of one manufacturer in the North of England who confessed that he lost either a man or a woman every week from his works through lead-poisoning. When I first introduced non-poisonous paints, some ten years ago, I had to fight a hard battle against the most deep-rooted prejudice. Nothing but lead would suit the trade or the consumer. The general public were, apparently, of the same way of thinking; but, still I persevered, even against the wishes of my partners at that time, and fought the battle step by step; but it was a hard and, I can assure you, a very expensive struggle. I found my greatest friends were those persons who advocated sanitary reform, and but for them I might have been beaten; still, I persevered, the Press advocating the adoption of my paints from a humanitarian and public health point of view. The beginning of this manufacture was very small. We commenced in a room in Liverpool, with one small hand-mill. After the paints had been thoroughly tested by a few practical men, we took large works in Seel-

street. The goods seemed to grow in favour, thanks to some hard pushing for their introduction, not but what there were plenty of faults in the manufacture of paints made from a new substance like silica, which took time and study to remedy. Another engine and boiler had to be added to these works, and soon afterwards we had to treat with our right-hand neighbour for a part of his premises. This addition, however, proved insufficient, and we had to take supplimentary works close by for the manufacture of the "enamel paints," which I had just before introduced. Seeing the evil results from the manufacture and use of lead paints, I had directed my attention to producing a white that should take the place of lead, and in 1870 and 1871 I commenced experimenting to find some substance that had as much covering power or body as carbonate of lead, and that should be as white, but of a more durable nature, and that could take the place of the poisonous substance used daily in our houses, our churches, our factories, and our ships. I soon after brought out what is now known as "Griffiths's Patent White." It is a zinc, but not an oxide,—it is an oxi-sulphide of that metal,—and has over 100 per cent. more covering properties than either lead or oxide of zinc; the colour is of the purest white, and that colour cannot be attacked by gases,—even sulphuretted hydrogen will not affect it; and, above all, it is non-poisonous. As soon as I introduced my new white we found the premises in Seel-street too small, and we had to negotiate with our left-hand neighbour, and eventually took the whole of his block. The business continued to grow, especially the export trade, and we saw there was nothing for it but to build works of our own, and here we are! We have spent close upon 25,000*l.* on these premises in which we are assembled, and we anticipate before long to be compelled to extend still more, as the foreign as well as our own Government are taking to our productions. Amongst other orders we have a contract now for the supply for twelve months of the Imperial Navy of Germany. When the plant for the production of Griffiths's patent white is finished we shall be the largest producers of white pigment in the kingdom: our "output" will be 50 tons per week of this sanitary paint alone, and we shall, I hope, in like proportion help to mitigate those dreadful results arising from lead poisoning reported daily in our Government dockyards and in our hospitals. The French Government during the Exhibition called an International Health Congress, at which about eighteen nationalities were represented; and one of the greatest questions brought forward during that congress by the representatives of the French Government, Messrs. Gubler and Napias, was "how to diminish the dangers incurred by workmen where white-lead and other poisonous substances are employed." They little anticipated at the time that not only could the evils be diminished, but entirely obviated, by a far superior substance; and when Professor Lutchaunig and Dr. Phipson rose and read their papers upon my invention it was hailed with the greatest delight, and caused quite a sensation of relief and pleasure. I had a letter a few days ago from the president of the jury of the International Exhibition informing me that the French Government are sending over a gentleman to inquire into the manufacture of this substance; but, close to Paris, one of my partners has erected works for its production, and in a very short time he will be able to supply "La Belle France" with all she may require. I am now about to retire from active business and from the Company, having seen it well and firmly established, and having had a good many years' very hard work, but I leave behind me good and energetic partners who I know will do everything in their power to extend the sale of non-poisonous paints, and promote the cause of sanitation.*

Cornish Serpentine.—Amidst the prevailing distress in Cornwall it is pleasant to hear that there is one district which has a chance of maintaining its prosperity. The Lizard Serpentine Quarries, which have been closed for two years,—thus depriving the architect of the use of a beautiful polished material,—have lately been re-opened by a practical marble mason in London, and are now in full work.

* We allow the Silicate Paint Co. to insert a pictorial illustration of their new works here described.

BUILDINGS AND THEIR RELATION TO SOUND.

AT a meeting of the Musical Association, which was held last Monday evening at their rooms in Harley-street, W., Mr. Cecil C. Saunders read a paper "On the Construction of Buildings in Relation to Sound."

Mr. Saunders said,—The difficulties which beset architects in meeting the requirements demanded of them has always had a tendency to increase rather than diminish with the growth of civilisation. A strong building, which should be impregnable to the attacks of an enemy, or a durable building, which should serve as a monument to the owner's greatness, was once all that was required. Soon, however, the æsthetic feeling began to assert itself, and the beauty of design took an equal, if not a superior, place to the strength and solidity of the structure. After that the additional convenience of light and air had to be considered; buildings were wanted possessing all the durability, space, and magnificence or beauty, as the case might be, and, at the same time, care had to be taken that the health and comfort of those using them were preserved. And now, in regard to a large section of edifices, comprising churches, chapels, lecture-rooms, concert-halls, theatres, and the like, the necessity has arisen for providing hearing accommodation of the best character to the largest number, and, of course, at the least cost. I do not mean that this subject has only of late attracted the attention of those engaged in building; for we know from archæological researches, at least, some of the means that were adopted by ancient nations, but with the growing appreciation of and the desire to hear good music has come in a great measure the modern importance of the subject. Mr. T. Roger Smith, in his work upon the "Acoustics of Public Buildings," says:—"In all branches of architectural practice, but in none so much as in that branch now under consideration, rules and principles never did, never will, and never can, supersede the necessity for intelligence, judgment, tact, experience, and something of intuitive perception in their application. The most successful architects will tell you that their judgment of the probable acoustic effect of this or that arrangement is as much or more the result of a sort of instinct,—a kind of internal perception of what will do or what will not do, as it is of the application of a code of laws or a set of rules." After a sentence such as this, you will readily understand the timidity with which I shall approach anything like a complete reduction of ascertained facts to rules for guidance; but, at the same time, I am not without hope that I may bring some facts before you in such a way as to make them of practical use and service.

The construction of buildings of the class for enabling large numbers of persons at once to hear vocal and instrumental music to the best advantage may be considered under six primary heads or divisions, which, however, can scarcely be treated of entirely separately, inasmuch as they are very intimately associated. They are,—size, shape, proportion, situation of the singer or orchestra, materials employed, and the bearing of all these upon the kind of music to be performed. It is desirous to keep the last in mind during the whole of our investigations. It is obvious, for instance, that a concert-hall might be built in the best possible way, but of such large dimensions that parts of a pianoforte solo would be inaudible to some of the listeners; or, on the other hand, we might fill a room so full, so to speak, of sound as to destroy all pleasure which the audience might have experienced from less. And, then again, there is a great charm in the long continued reverberation to be heard in Westminster Abbey and other buildings of somewhat similar construction. It is difficult to find a building equally well adapted for the hearing by a large number of both slow music and rapid; or, at all events, of both loud and soft. It will be obvious that the size of a concert-room depends more upon the amount of disposable funds than anything else, and it is equally obvious that a small room will not be so liable to acoustical defects as a large one. It should be remembered that every listener must have from five to six square feet in area, and as music should be good, and good music should be heard in comfort, six square feet is not at all too much to give to each seat,—*i.e.*, including passages between one part and another. This will give an area of 6,000 square feet for 1,000 auditors, or 30,000 square feet for 5,000, which, I think, is almost the greatest number that can reasonably be expected to hear good music well. While size depends so much upon the consideration of money, the shape of a concert-hall is too frequently subservient to that of the plot of ground on which it is to be placed; and here it is that the architect has to make use of all his ingenuity and the utmost fertility of his resources, in order to obtain the largest amount of accommodation upon the site at his disposal. But, if the fates are not too unpropitious, the usual shape for a concert-hall is a rather long rectangle; if for a large audience, galleries are introduced at the end, and perhaps at the sides, the orchestra being placed opposite the end gallery. Now, this form, although for a moderate-sized concert-room it has its advantages, for a large hall has serious drawbacks. If it be very long, a large number of the audience are at so great a distance from the performers that the waves of sound, interrupted as they are by heads and bonnets, do not reach the more distant listeners in anything like their initial crispness and force. If, on the other hand, the room is very broad, there is a tendency to echo, as the sound which travels direct to the listener from the orchestra comes to him also from the side walls by a more circuitous route, giving, if not an obvious echo, an undefinedness and want of decision throughout. This, of course, would not be the same in all parts of the hall. The height of the room has also to be considered, bearing, as it does, directly upon its acoustical properties, and the height can only be satisfactorily considered in reference to the contour of the ceiling. What is called a wagon-headed ceiling, *i.e.*, one formed upon a segment of a circle, might be most distressing to the singer, as, if he be placed in the centre from which the circle is described he will receive an echo of great force, which will probably be sufficient to prevent his exercising his power to the extent to which he would otherwise have made use of it. As far as I have been able to judge, a circular room has great disadvantages, particularly when associated with a high and vaulted ceiling. In the Chapter-house of Westminster, which is an octagon, with sides of about 24 ft., and a groined roof, the echo, when the room is empty, repeats itself so perfectly and quickly that it becomes a prolonged reverberation, and so much so as that by singing in moderately quick succession three or even four notes in concord, the whole chord resounds for a considerable time. One of the most successful places for hearing that I know of, which approaches to a circular shape, is Surrey Chapel, in the Blackfriars-road. This has sixteen equal sides and a gallery all round, and, I believe, was built to accommodate 1,400 persons. It has windows all round it, both above and below the gallery; the roof over the centre portion is hemispherical, with a small lantern at the apex. This chapel is almost free from echo, but it requires a powerful voice to fill it.

Great height in a concert-room appears to be disadvantageous to the hearers, excepting that a singer feels in a lofty room at such an advantage as to sing better, or, at all events, with more comfort than in a low one. I would suggest that, having due regard to proper and perfect ventilation, a concert-room should not be higher than is necessary, and, although there are remarkably good concert-halls, with semi-circular ceilings, yet, as a rule, this form does not appear to be so successful as a flat ceiling. Writing upon concert-rooms, Mr. H. Heathcote Statham says:—"As a general rule, music cannot be really enjoyed in rooms above a certain limit of size, certainly not music requiring delicacy of execution and expression. It may be doubted whether it is possible to enable more than 2,000 persons at the outside to hear an orchestral symphony with full enjoyment and realisation of the intended effect." With all due respect for Mr. Statham, I feel very much inclined to combat his suggestion, and to say that I have little doubt but that 5,000 might, in a properly-constructed building, hear an orchestral symphony with full enjoyment and appreciation of the most delicate points. In regard to the advantages resulting from the use of large concert-halls over that of smaller ones, to put the matter upon wider and more Christian grounds, the humanising influence of music would be experienced by more individuals in direct proportion to the opportunities given them of hearing it. In considering the size of concert-rooms, the first question that arises is, "How far the sound designed to be heard will

travel?" By far the greater portion of sound, so to speak, goes upwards into the air, and but a small part is directed towards the hearing level. A resonant wall or sound reflector, placed anywhere within the limits of the voice, will have the effect of re-enforcing the sound between it and the speaker or beyond him to some extent. As to the extraordinary modifying influence upon the intensity of sound which is produced by light, this I confess myself unable to account for or to explain. Perhaps when the dynamic force of light is better understood than at present, we shall be able to obtain a scientific reason for the remarkable fact that I have just stated.

The height at which a ceiling should be placed depends upon the necessity for ventilation and other matters, but, as far as acoustics are concerned, I would say a ceiling should be as low as practicable if the aim be to carry sound far in a horizontal direction. Every foot of additional height lessens the horizontal distance to which the sound can be carried, and consequently the number of possible hearers. It should, however, be remembered that the proportions between the length, breadth, and height of a room have some influence upon its musical advantages. I am strongly tempted to think that in a very large hall the proportions are of comparative unimportance; and, indeed, there are very good concert-rooms the proportions of which are anything but simple; and occasionally of two rooms of exactly the same dimensions one is successful and the other the reverse. The position of the performers on the orchestra is one which ought to engage our attention, as, although little regard is bestowed upon it usually, a great deal of the possible successfulness of a concert-hall is attributable to it. Let us fall back upon a square room with rounded corners, and, in defiance of preconceived notions of symmetry, let us put the orchestra in one corner. We will suppose the orchestra to be capable of seating 700 performers. Of course, the orchestra seats must rise tier above tier up into the angle of the building. An organ is a very useful, almost indispensable, adjunct; therefore, let us have an organ by all means. But, let the greater part of the body of the organ be beneath the orchestra, with say the choir organ only visible above, so as to permit the ceiling to be as low as possible, in order that the voices of tenors and bassos may be diffused perfectly over the whole building. Light for the orchestra and chorus should be obtained from a sun-burner or electric light in the extreme angle of the ceiling, so shaded as to be of the utmost service to the performers, but unseen by the audience. The light would be thrown from behind the chorus and orchestra, so as to give them the best possible advantage from it. Ventilation would also be gained by the same means, and by perforations in the ceiling, ribs, and cornice. By placing the orchestra in the angle of the building, we obviate the difficulties that arise from its position, either at the end of a long hall, or in the centre of the side of a wide one. Very few of the auditors could receive a double sound, i.e., a direct and an echoed sound, as would be the case if the orchestra were put in the centre of one side of the room; and the average distance between the listeners and performers is materially lessened. The auditorium (to seat 5,000 persons) may have a circular arrangement, so as to give every one a direct view, and therefore a better hearing, of the performers. The circles should be described from a point near the centre of the orchestra, and the levels of the seats should be so arranged as that those sitting in the rear should have no difficulty in seeing and hearing over the heads of those in front, the seats in the extreme angle opposite to the organ being almost as high as the top of the orchestra. It will be readily seen how, under this arrangement, the sound travelling along, or rather being reflected at a very obtuse angle by the ceiling, will reach those hearers who are at the greatest distance as clearly as it will those nearer to the performers. As to the materials of the hall, great care is necessary in their choice. Regarding, as I do, the ceiling as the greatest means of sound-diffusion and conduction, I would certainly recommend wood, the boards being carefully and accurately tongued and grooved together, so that each bay should be one large sounding-board. Plastering, in the ordinary sense, is the worst possible ceiling, and, in fact, is one of the most perfect non-conductors of sound used in building. An alternative to the use of wood is offered in zinc, which would be nearly as cheap, and perhaps more efficacious even than wood. The ceiling might be divided by circular and radial beams, perforated for ventilation, and reconciling the eye to the somewhat novel distribution of parts in the hall. With regard to the walls and their covering, those immediately at the back of the orchestra should be lined with whatever will give the greatest possible reflection to sound. I believe glass to be as good for this purpose as anything commonly used. I have been surprised at the power possessed by looking-glasses of reflecting sound. Large plates of looking-glasses on the walls adjoining the orchestra would increase the effect as well as the consciousness of power of the performers. The glasses, however, should not be bedded in flannel, as is usual, but allowed to vibrate with every note, reflecting it with the same accuracy as they would a beam of light. With regard to the remainder of the walls, I would recommend boarding or cement. Good Portland is hard and elastic, and although cement can hardly be said to be resonant, it affords a highly reflecting surface for sound. Stone would be better, but its great cost is almost prohibitive.

If solo or quartet performances are contemplated in this model hall, a movable screen behind the players or singers might be arranged, so as to reinforce the sound in its forward direction, and enable the whole audience to enjoy fully the musical treat to be thus offered them. This screen should be of two thicknesses of wood upon quartering, so as to be capable of the greatest possible resonance, and a sounding-board at the top, inclined slightly upwards, would materially assist in the forward direction of the softer and more delicate sound. Many halls are spoilt by excess of reverberation or by echo, *e.g.*, St. George's Hall, Liverpool. A large room when empty always echoes, and the best way of avoiding echo is by a good programme and low prices; but if there is a probability of a sparse audience, part of the hall only should be used, heavy curtains being suspended, wherever necessary, from hooks in the ceiling prepared for the purpose. The lighting of the concert-room is a subject of great importance, and the sources of light should be many in the auditorium, and as near the audience as practicable. Electric lighting is yet in its infancy, but the time may soon come when numerous small carbon points, hanging by almost invisible wires, shall take the place of the present cumbrous gasfittings to which we have to look for light.

"THE PROSPECTS OF A NATIONAL THEATRE."

UNDER this heading the Theatrical Editor of the *Sunday Times* has made another good effort in favour of a scheme we have much at heart. We reprint some portions of his remarks:—"It is certain that the number of converts to the views of those who advocate a subventioned theatre increases in augmenting ratio, and that some men of importance are yearly added to the cohort that has long fought the battle of an enlightened and an educated stage. At no time since the beginning of the agitation, and, indeed, since a period much earlier—for we are not boasting in saying we were among the first, if not the first, openly to recommend a scheme of the kind—have we ceased to keep the matter before the public, and we have watched the growth of an agitation which Government will before long feel itself bound to respect. One by one leading journals have spoken favourably of the idea. The daily journals have consented to speak patronisingly of those who have worked in its behalf, and more distinctly literary and artistic journals like the *Athenæum* and the *Builder*,—the latter, under the direction of its editor, Mr. G. Godwin, working with special zeal,—have kept the matter prominently before the public."

"Not long since, in a volume by an influential member of the Conservative party, Mr. Baillie Cochrane, the expediency of establishing an institution like the Comédie Française was shown. Private enterprise is interested in the pursuit, and we have more than one scheme before us which aims at obtaining from private liberality what Government is too timid to grant. Mr. Walter Raleigh has published at his own expense a 'Scheme for the Establishment of a National Theatre (somewhat similar to the Comédie Française) by the Formation of a National Dramatic Institute from amongst real and influential patrons of the Dramatic Art and Literature, and eminent Artist(e)s earning their living thereby." In a recent number of the *Builder*, meanwhile, Mr. Planché, the Somerset Herald, one of the most indefatigable workers in this line, has given the world the particulars of a scheme not wholly dissimilar, which must carry all the weight that its author's talent and experience justify in assigning it. We would gladly give Mr. Planché's scheme all possible publicity. The entire reading public of England, however, may see it in the important journal in which it appeared. We should be glad, too, to assist in any way in giving all assistance to the scheme if ever an effort is made to put it into operation. It is not, however, all we want, nor all we think we shall get. We must, of course, be thankful for a sum like 20,000*l.*, which Mr. Planché puts down as adequate for the commencement of an experiment, but only because when once a sum like this is obtained we are sure to obtain more. Still our great faith is in the ultimate success of an appeal to Government if only the agitation is maintained. Payment for an educated stage cannot, of course, be urged upon Government as an urgent necessity, and wider and more enlightened views than are common in high quarters, are necessary before it can be regarded as a thing of high importance. Such, however, it is. It may, meanwhile, be maintained that no movement which has once found such supporters as this of which we speak has ever failed ultimately to commend itself to the general public, and so to come upon Government in the end as a command."

THE STRENGTH OF DIFFERENT THICKNESSES OF MORTAR JOINTS.

IN No. 31 of "Professional Papers on Indian Engineering," edited by Major A. M. Brandreth, R.E., particulars are given of some experiments made at Narora, Lower Ganges Canal, on the strength of different thicknesses of mortar joints, by Lieut. E. W. Creswell, R.E.

The different thicknesses of mortar joints to be tested were $\frac{1}{16}$ in., $\frac{1}{8}$ in., $\frac{1}{4}$ in., $\frac{1}{2}$ in., $\frac{3}{4}$ in. A level site close to the weir sluices was selected (as the blocks of brickwork were afterwards to be put into the talus of that work), and five rows of brickwork bars built, 15 ft. × 2 ft. 6 in. × 2 ft. 6 in., each row containing ten bars, and numbered A to E. Mortar joints in row A were all $\frac{1}{16}$ in., in row B $\frac{1}{8}$ in., and so on, in order mentioned above, row E being $\frac{3}{4}$ in. The foundations for these bars were made 1 ft. deep. The centre 10-ft. portion of the foundations being of bricks laid in mud, the end 2 ft. 6 in. portions of bricks laid in mortar, a thin layer of mud was spread over the whole surface of the top of foundation, so that there might be no adhesion whatever between the superstructure and the foundations.

The bricks were sand-moulded kiln-burnt, were carefully gauged and sorted, so that each bar might be built with the required joint, and still the total dimensions of bar as directed be attained. The mortar used was two parts steam ground coal-burnt kankar lime to one part sand, mixed with water in a country bullock "chakki." The joints in every direction were carefully kept of the required thickness, and English bond was employed. The bars were all completed in August, 1877.

In May and June, 1878, the brickwork of the central 10-ft. portion of the foundation was removed, and the bars were simply supported at both ends by the 2 ft. 6 in. pillars. In order to break the bars two stone slabs 2 ft. 6 in. × 6 in. × 6 in. were placed 1 ft. apart on the top of the brickwork and equidistant from the centre of the bar. Across these 24-ft. rails were laid, and over these other rails, till the load caused the bar to break across. The line of rupture varied, but was always somewhere between the slabs of stone. It was observed that the average breaking-weight required was greatest in the row C, or of bars with $\frac{1}{4}$-in. joint; this average diminished slightly for the $\frac{1}{2}$ in., and was less again for the $\frac{1}{16}$-in. joint. The thick joints $\frac{1}{2}$-in. and $\frac{3}{4}$-in. gave very poor results, the average breaking-weight being about two-thirds of that for the $\frac{1}{4}$-in. joint. The bar that gave the highest result was No. 4 B of the $\frac{1}{4}$-in. joint. The general result appears to be that $\frac{1}{4}$-in. joint makes the strongest work, and should be employed in preference to the finer joints.

We may add to the foregoing that if a longer period of time had been allowed to elapse before the trial, the $\frac{1}{4}$-in. and $\frac{1}{2}$-in. joints might possibly have given better results.

THE BRONZE PANELS AT CARPENTERS' HALL.

THE prizes offered by the Carpenters' Company have been awarded. The sunk panels, proposed to be filled with bronze castings, are in the north front of their new hall (a view of which appeared in our last volume) at the corner of London-wall and Throgmorton-avenue. Rusticated piers support the large Corinthian columns which go round the upper part of the building. The panels are on the faces of these piers, the field of the panel being 2 ft. 4 in. and the height over 13 ft., depth 8 in. Heads of Wykeham, Michelangelo, Inigo Jones, and Wren occupy keystones of the lower windows, and supply the only figure sculpture on the façade at present. The problem was left wholly to the designers; the only suggestion being that the lower parts of the panels, which start at about 6 ft. above the pavement, should be kept plain, so as not to tempt boys to damage them.

The first prize has been gained by Messrs. Cox & Sons, who submitted two designs. The selected one begins at the top with the arms of the company; then has compasses, square, rule, hammer, &c.; below these is a figure-panel with a workman adjusting a plane, and another fixing a panel; a small medallion of Wren is interposed before the branching foliage at the bottom is reached. Much modification in the design will be necessary in execution, in order to suit the large scale of the rusticated piers and of the stone mouldings. The drawing is clever, and the design is fitted for casting in bronze.

The second prize has been gained by Mr. Matthew Coulson. His designs are of considerable vigour, and shown by able drawings in brown colour, with cast shadows in grey. The semicircular top of the panel is filled with a large human mask,—perhaps rather out of place, as there are portrait-heads just above. Then come mitre-boxes, centre-bits, compasses, chisels, and other tools, strung together on drapery hanging from the chin of the mask. The frequent occurrence of objects in high relief, in front of objects in high relief, the ledges for lodgment of water, and generally the difficulties of turning the design into bronze, are probably not so noticeable in a drawing as they would be when modelling was begun. The use of bronze in a London building in this way is probably a first experiment, and something will be learnt when it is made,—the stone architecture can hardly be left untouched elsewhere, when these pieces of dark metal have been cut into the basement piers. This was not, however, the problem submitted to the designers in the competition; they had to design panels for the basement of a building massive to heaviness in its detail, to give a treatment bold and rigid,—thoroughly metallic; showing also distinct consideration of the lines and character of the architecture. It would be too much to say that all the competitors failed; it is enough to note that the successful ones have not wholly succeeded.

METROPOLITAN BUILDINGS.

ON Monday a large deputation of the Metropolitan and Suburban Builders' Association, headed by Sir James Lawrence, M.P., and Mr. Octavius E. Coope, M.P., had an interview with Mr. Cross (with whom was Mr. Lushington), at the Home Office, Whitehall, to present a memorial, praying the Home Secretary not to approve the bye-laws passed by the Metropolitan Board of Works for carrying out the Metropolis Management and Building Acts Amendment Act, 1878, on the ground that the bye-laws were vexatious to the building trade, and would prevent in the future the erection of artisans' dwellings.

The deputation, it was said, did not represent the large builders, but the men who by their brains had made their own way. Sir James Lawrence declared that some of the bye-laws made by the Metropolitan Board to govern the erection of buildings were impracticable, and it would be impossible to carry them out. He objected to the rules that concrete was to be used in all cases under walls, and that the filling up of holes under houses to be built was to be with "hard brick rubbish, or other similar material." He also objected to the provision that "good square, sound, and well-burnt bricks" should be used for the internal walls as well as for the external walls, and to the regulations for the composition of the mortar,—"good lime and clean, sharp sand, which has been properly washed, or grit, in the proportion of one of lime to three of sand or grit;" and he regarded the rules as placing unnecessary restrictions upon builders. He also criticised the powers given to the district surveyors under the rules. Mr. Coope said he held that it was important that houses for the working classes should not only be constructed with a due regard to the necessities of health, but that they should be cheap, in order that rents should be kept down. He knew that in some parts of London houses had been so built that it was impossible they could be healthy dwellings; but he thought that consideration should be given to the point that while care was taken to guard against such erections, there should not be rules to prevent the erection of cheap houses for the poorer classes.

Mr. Goulding declared that if the bye-laws were enforced the increase in the cost of brickwork would be 15 per cent. on its present price. As it was, the trade had to compete severely with foreign importations of building materials, and these laws would make that competition keener still. Especially was that so as regarded the use of sand in making up mortar. They would greatly limit the supply of 20*l.* a-year houses. He complained of the large powers the laws vested in the district surveyors, and particularly asked that section 2 might be altered to meet that complaint. At present, if the surveyor found fault with the site on which a house was to be built, he was entitled to an extra fee for doing so; and such laws only held out an inducement to the surveyors to find fault with work whether there was occasion for it or not. He urged, also, that magistrates should not be fettered as the laws proposed in regard to the infliction of minimum fines, but that the matter should be left to his absolute control as to whether he would fine or not. He asked Mr. Cross to use his influence in the matter, and return the bye-laws to the Metropolitan Board of Works.

The Home Secretary answered,—All I can say is, of course the Metropolitan Board of Works, in the exercise of their discretion, have prepared these bye-laws for my consideration, which under their statutes and powers they have a right to do, for the purpose of securing the safety and the health of the people under the Act in question. Whether the objections you raise to any of those bye-laws show that they are too stringent for those purposes for which we have given the Board powers is the question which we will give our consideration to. More than that at present we cannot say.

The deputation then retired.

BYRON'S STATUE AND THE ST. GEORGE'S (HANOVER SQUARE) VESTRY.

THE name and genius of Byron were rather freely handled at the last meeting of the St. George's Vestry in connexion with the statue proposed to be erected to the memory of the poet. The Committee of the Works of the Vestry had recommended that an application from the Earl of Rosslyn for permission to put the national memorial statue of Byron on the spot now occupied by "Pierrepoint's Refuge" at the top of St. James's-street, be complied with, and Mr. Walker, in moving the adoption of the report, said that there had been some opposition manifested on theological grounds, and also because the statue would narrow the roadway. He considered, however, that it would be an ornament to the parish. The motion having been seconded, a long and rather acrimonious discussion followed on the matter, in the course which several speakers opposed the proposal.

Mr. Johnson said inhabitants of the neighbourhood complained that the statue would obstruct the traffic. The base would be of marble, and was a present of the Greek Government.

Amongst the speakers in opposition was Mr. Morris, who said he thought it would be a decided block, and he objected to a refuge erected by a philanthropist being replaced by a statue of a misanthropist, and thought the best place for it would be the middle of Seven Dials.

Earl Powis supported the motion, contending that the question of theology should not be imported into the discussion.

The motion was eventually lost, twenty voting for it, and thirty-three against it. Consequently, as matters stand at present, another site will have to be found for the statue.

We have no hesitation in saying that we quite agree with the majority, on the single and sufficient ground that there is not room for the statue at the place named, and that it would there be a most injurious obstruction. The site in Piccadilly previously named for it, taking in a small portion of the Green Park, would be a much better place for it.

OBITUARY.

Miss Eliza Meteyard, author of the "Life of Wedgwood," and other works, died at her residence in Stanley-place, South Lambeth, on the 4th inst., aged 63. She was the daughter of Mr. Meteyard, a surgeon practising at Shrewsbury. Her first work, "Struggles for Fame," was published in 1845, and was followed in 1849 by a prize essay on "Juvenile Depravity." She published in succession several stories, and contributed a leading article to the first number of *Douglas Jerrold's Newspaper*, and Jerrold himself appended to that article the signature of "Silverpen," under which *nom de plume* Miss Meteyard contributed extensively to several metropolitan newspapers and magazines. In addition to her charming stories enforcing the domestic virtues, she also wrote on extramural burials at a time when public cemeteries were few and far between, and took her place in the ranks of sanitary reformers when sanitary reform was less fashionable than it is at the present day. But Miss Meteyard's *magnum opus* was undoubtedly her "Life of Josiah Wedgwood," in which she embodied the results of many years' intelligent and painstaking research, carried on with an absorbing enthusiasm for all that related to the great potter. The "Life of Wedgwood" was succeeded in 1871 by "A Group of Englishmen," in which the story of the younger Wedgwoods and their friends was told; and in 1875 appeared the "Wedgwood Handbook." Several other works, illustrated, describing Wedgwood's choicest productions, have also employed Miss Meteyard's pen, and her death has interrupted a new edition of the "Life," from which much was expected, and to the completion of which she looked forward with zest for the repose which was to follow. Her literary labours were recognised by Mr. Gladstone, upon whose advice she was awarded a pension of 60*l.*, which was afterwards increased, in response to a very influential memorial, by the present Government to 100*l.* per annum. Dean Stanley also placed at her disposal the cottage in which she has resided for the last two years.

A fortnight before Miss Meteyard's lamented death we received a letter from her asking information as to the Literary Fund for a friend who had fallen into trouble, and adding:—"You will have seen, I dare say, the announcement of the death of my valued old friend William Howitt. The Howitts formed an integral part of my life for many years, and therefore I am sorry that the first link in the chain is broken. His wife, should I survive her, I shall miss much. You and I are younger, still we must begin to recognise that our generation is passing away; not regretfully, however. We have done our work to the best of our ability, and need not regret to give up to newer light and newer time those causes for which we have laboured."

Mr. R. G. Hatfield.—The death of Mr. R. G. Hatfield, architect, of the United States, is announced. The following minute adopted by the trustees of the American Institute of Architects will serve to show the estimation in which Mr. Hatfield was held:—"The Board of Trustees, assembled for the first time since his death, desires to express in a public manner its sense of regret at the loss which, through the death of its chairman, R. G. Hatfield, esq., the Institute, the architectural profession of this city, and the public have sustained. To Mr. Hatfield's untiring interest in the conduct of the affairs of the Institute, a large measure of its success and influence was due, and his able and honourable practice of architecture has had no small weight in establishing the position which the profession now enjoys. The Board of trustees gratefully calls to mind the fact that all Mr. Hatfield's intercourse with its members have been marked with uniform courtesy, and that his temperate counsel and consideration had won from them an unqualified regard and respect."

Sir Anthony Panizzi, formerly and for many years principal librarian at the British Museum, died at his residence, 31, Bloomsbury-square, on Tuesday afternoon, in his 82nd year.

CITY OF LONDON SCHOOL.

SIR,—I trust you will do your best to influence the Committee in favour of a public exhibition of the drawings, &c., both before and after the selection, in accordance with the Institute suggestions. Few of us know what our antagonists have done,—we should much like to know,—and do not see any good reason why we should not have that small enjoyment as a reward (perhaps the sole reward) for our labours. No one supposes there is going to be any unfair dealing, so that argument need not be urged.

I trust you will be able to notice our work before the selection is made. Press notices are not infallible, but they are very consoling to competitors. A kindly acute critic used to the work, looks keenly at everything, and says what he must say, and gives as much satisfaction as any one can hope to give who has formed opinions, and knows how to make them clear to other people. I say nothing lengthy about modest merit, and the word of appreciation in season,—those interesting fields have been worked over a little too zealously. Modest youth is hardly likely to have covered so large an amount of double elephant in the time allowed; but even middle-aged men of business like to see their virtues noticed in print by some one whose words are weighted with knowledge. As to the appointment of a professional referee, the character of the building seems absolutely to demand it. There are so many cardinal points. The position of the great hall and the level of its floor, for instance, have no doubt determined the arrangement of many designs, —properly, should have ruled them all. Settling the ways into this hall and out of it is one of the most important problems recently set to architects for solution. A large portion of the middle-class schools yet to be built will be affected by the decision in this case. Then the construction of a special type of class-room, and its repetition twenty times, and the introduction in certain places of special differences; the problem of placing the main entrance rightly, with reference to the interior, it being the single entrance to the whole building; the influence of the adjoining buildings, of their altitude and form; the overlooking windows on the east boundary of the site; the use of the subway and landing-stage; the drainage as affecting the floor levels;—these, and a host, indeed, of technical difficulties as well, need to be apprehended clearly. It seems unreasonable to expect any one, except a professional person, to grasp and to think of all at once, in the way that is necessary in order to decide which will be the best building for the purpose when executed on the site.

Perhaps a word of apology ought to be put in here, after your judicious warning and protest, for rushing madly into this contest, and spending energy and money without stint upon it. As a money calculation, every word you have used is sober truth, and the folly of our profession in not rendering such things impossible, by solemn compact among ourselves, is something dreadful to think of. But the desire to take part in such a contest is a little too strong to be resisted by the aid of sound sense or of good advice. To deal with a problem including so many problems,—to have the hope of influencing many decisions in the future in the cause of secondary education,—this sort of thing is luxury in its way, and, apparently, must be heavily paid for, or dispensed with altogether.

That a reformer may arise who will secure such luxury to architects at a reasonable price is the earnest wish of

A COMPETITOR
In the City of London School Competition.

Royal Institution.—The Friday evening lecturer last week was **Mr. Crookes, F.R.S**, the inventor of the radiometer, and a large and brilliant audience assembled to hear him. Mr. Crookes laid before them a remarkable series of experiments in a remarkably perfect way, relating mainly to the passage of the electric current through a vacuum equal to about a millionth of an atmosphere, and showing the extent to which the current is amenable to a magnet applied outside the vessel. The experiments, results of long investigations, are none the less interesting because the lecturer was compelled to admit at the close that the practical applications of the facts established are not at present obvious. These are usually the work of succeeding labourers.

PROPOSED EXPERIMENTS ON COWLS.

THE sub-committee appointed to test the cowls exhibited at Leamington made a report, it will be remembered, which called forth many opposing statements, as well in our pages as elsewhere. It is proposed to extend the inquiry to other appliances for ventilation besides those already submitted to trial, and by permission of the Royal Society the experiments will be carried out at the Royal Observatory, Kew.

The council of the Sanitary Institute have passed a resolution appointing Capt. Douglas Galton, C.B.; Mr. Rogers Field, B.A.; and Mr. W. Eassie, C.E., as a committee to undertake such investigation with a view to the publication of the detailed results. The expense of the contemplated inquiry will be considerable, and it is sought to raise the requisite fund by special subscription among those interested in the thorough investigation of the subject. Subscribers of a guinea and upwards will be entitled to receive a copy of the details of the experiments when published. About 170*l.* are already subscribed.

Our chief object in mentioning this intention is to suggest that persons interested in the investigation who have any useful suggestions to make on the subject should communicate with the committee so as to assist in obtaining a satisfactory and useful investigation. It will scarcely be claimed that the "Sanitary Institute of Great Britain," so called, has the confidence of any large section of the public, but the gentlemen named for the present inquiry are competent and reliable persons, and it is very desirable that the investigation they are about to make should be conducted in the way most likely to obtain valuable results.

COMPETITIONS.

Ipswich Corn Exchange.—The corporation of Ipswich having offered a premium of fifty guineas for the best set of plans for the re-arrangement of the Public Hall, so as to enable it to be used as a Corn Exchange, seven architects responded, and from the plans sent in the committee selected the set bearing the motto, "Tria Juncta in Uno," and the town council has resolved that the premium be awarded to that design. It was found, on breaking open the envelope accompanying the design, that the successful competitor is Mr. Horace Cheston, of Great Winchester-buildings, London. By this plan it is proposed to lengthen the present hall to the southward, making it 150 ft. in length, so as to secure an area of 7,550 superficial feet. This would necessitate the removal of the present saloon, and also the acquirement of a triangular strip of land adjacent. At the back of the stage, at the south end of the enlarged hall, is provided a "crush"-room, with cloak-room, &c., and above it a saloon similar to that now existing. The other competitors were Mr. William Eade, Ipswich (motto, "Utility and Economy"); Mr. Brightwen Binyon, Ipswich ("Bona Fides"); Messrs. Wright & Wright, Ipswich ("Postulata"); Mr. Henry Luff, Ipswich ("Economy"); Mr. Henry Elliott, London ("Excelsior"); and Messrs. Scott, Gibby, & Barnard, London ("Grosvenor").

Ipswich Museum, Free Library, and School of Science and Art Buildings.—The Museum Committee of the Town Council have decided to invite architects to send in competitive designs for their proposed new buildings. The Museum, in one or more rooms, is to have an approximate area of 4,400 square feet. The free library is to consist of library with 1,000 square feet area, a reading-room of equal size, and a committee-room of 450 square feet area. The School of Science is to have a laboratory of 550 feet area, stores of 125 ft., class-room 800 ft., with master's preparation-room adjoining, 225 ft. The School of Art is to consist of elementary class-room 600 ft., advanced class-room 750 ft., and painting-room 500 ft., communicating and divided by curtains, ladies' and gentlemen's cloak-rooms, each 100 ft., rooms for models, casts, &c., 300 ft., and master's room 180 ft. The principal elevation is to be toward High-street. The estimate of the cost is not to exceed 7,000*l.* For the best design a premium of 50*l.* is offered, to merge in the commission if the author be employed to carry out the work; for the second best design a premium of 25*l.* is offered.

Blundell's School, Tiverton.—The Governors, at a recent meeting, selected the plan submitted by Messrs. Hayward & Son, Exeter, for the erection of new buildings at Horsdon, subject to the condition that the work could be executed within the sum specified,—11,000*l.*

Kenilworth Sewerage Works.—The Local Board of Health of Kenilworth have awarded to Mr. G. A. Lundie, C.E., Cardiff, the first premium of 50*l.* for his scheme for the sewering of the town. The works are estimated to cost about 5,000*l.*, and the sewage is proposed to be dealt with on eight acres of land by intermittent downward filtration. The Local Board advertised for plans, and there were twenty competitors.

THE "JERRY" BUILDER.

"HIT him hard!" "Why not?" may be remarked. "He has no friends. Is he not a 'speculating' or 'jerry' builder? Does he not use mud for mortar, build on ashes, make bad drains, employ 'hedge carpenters' and 'baalamb sashmakers,' put on locks that will not act, use 'venamonteague' and other villanous dodges for hiding inferior work? Does he not get shown up in *Fun* and other comic papers? Is he not the terror of district surveyors, the despair of local Boards, and his very name a bye-word and reproach? Does he not——" "Stop, my friend; not quite so fast. I grant you my friend the 'jerry' builder is the cause of much discomfort and disappointment both to occupiers and purchasers of houses, but whilst he has probably made some lunatics, a few suicides, and hurried numbers to untimely graves, by fevers caught through defective drains, or colds from terrific draughts, he is at times as much sinned against as sinning, having been educated up to his present depraved condition by those in the background who should know better. Besides, think of those he has benefited, of the scheming landowners he has made happy, who can, as they recline in easy chairs, in well-appointed mansions (not erected by 'Fielders,' but built in the best manner), with calm delight mentally view the terrace of houses, the 'attractive villas,' now standing where before a waste howling wilderness only existed, and which, at high ground-rents, will, badly built as they are, last quite long enough for *their* purpose." Yes, this is the reason why so much speculative rubbish is "run up." Too much encouragement is given for the covering of land, in many cases with houses scarcely subject to a surveyor's certificate for the lease. The sites not unfrequently carefully prepared for years as a rubbish-shoot for the crop of houses to afterwards spring forth.

No conscientious surveyor will, of course, lend his aid to further such schemes, and I remember with pleasure that many years since I was associated with a gentleman who resigned his appointment because his client, in an unreasonable haste to cover his estate, would pass inferior work against his surveyor's advice. Would this example were taken to heart by those who are "their own surveyors": the result would be most satisfactory, and much bad building would be prevented. Then, look at the system of advances made to sometimes really worthy industrious men, who, having a little capital, are coached along for a time, and finally squeezed dry by wealthy proprietors of the soil; often resulting in the victim dying broken-hearted at seeing his savings and years of labour expended in vain; or, should he get over the disappointment, who can wonder at his becoming a "jerry" builder of the worst type, and doing to others as he has been done by?

Those of your readers who are practical men will at a glance realise the truth of the above remarks, and any effort made to get at the root of the evil will much please

ONE WHO WOULD PUT THE SADDLE ON THE RIGHT HORSE.

Mr. J. H. Parker, C.B., of the Ashmolean Museum, Oxford, has received from his Excellency the Italian Minister, General Menabrea, the gratifying announcement that his Majesty the King of Italy had appointed him Cavaliere of the Order of SS. Maurice and Lazarus, in recognition of his ingenious and learned researches in recovering the true history and topography of ancient Rome, from its ruins and old Roman traditions, instead of following some recent extravagances of other archæologists, which denied the existence even of the Kings of Rome.

NEW SUBURBAN BUILDINGS AT WANDSWORTH.

ABOUT 100 acres of land at Wandsworth, situated between Wandsworth Prison and Garrett-lane, is immediately to be laid out for the erection of villa residences. This land was recently purchased for the purpose by Mr. Robert Davis, of Earlsfield House, Wandsworth Common, and the preliminary step of draining the estate and laying out the roads is just about to be taken, the making of the principal road,—which is to be called Earlsfield-road,—and drainage works in connexion having been contracted for by Messrs. R. & G. Neal, of Wandsworth, for the sum of 5,266*l*. The designs and plans for laying out the estate have been prepared by Mr. T. G. Lynes, architect, and according to these designs the buildings to be erected will be confined to residences of the villa class, the estimated cost of which is about 1,000*l*. They are all to have frontages of about 40 ft., with grounds in the rear, extending to a depth of some 200 ft., each house standing within grounds about a quarter of an acre in extent. When completed, we understand that the estate will contain about 300 of the residences indicated above.

SALE OF A BUILDING ESTATE.

ONE of the largest sales of building land within the metropolitan area which has for some time past been held, took place at the Auction Mart last week, when Messrs. Baker & Sons offered upwards of 100 acres of land at Willesden, comprising the freehold estate of the late Mr. Richard Taylor, and which was described in the particulars as being situated within a few minutes' walk of Willesden Junction and the Harrow-road station of the Midland Railway, with extensive frontages, and ripe for development for building. The property was divided into eight lots, the first lot consisting of a freehold cottage, together with two acres and two roods of land, and which was sold for 1,610*l*. The second lot, consisting of a large and commodious farmhouse, together with twenty-seven acres of land, realised 10,990*l*. Lot three, containing three roods of building land, was sold for 950*l*. The next lot, containing an area of a little more than six acres, opposite to the Harrow-road station of the Midland Railway, and which, the particulars stated, could be at once profitably utilised for building, realised 3,480*l*. Lot five, immediately adjoining the last-named lot, and containing eleven acres, said to be ready for immediate building operations, was sold for 5,500*l*. Lots six and seven, containing respectively twenty-four acres and twenty-six acres of meadow land, were bought in, the one lot at 6,600*l*. and the other for 7,000*l*. The last lot, which was a small one, containing little more than half an acre of meadow land, was sold for 300*l*. The aggregate area of the lots sold was about forty-eight acres, and the proceeds, 22,830*l*.

"SUPERFLUOUS LAND."

THE METROPOLITAN DISTRICT RAILWAY COMPANY AND COST.

THIS was a summons (in the Chancery Division) under the Vendors and Purchasers Act, raising a curious question of railway law upon the sale of the surface of land contiguous to Hammersmith Station, over the railway, for the purpose of building, and subject to certain restrictions. The property was sold as superfluous land, and the question at issue was whether the vertical slices over the railway were superfluous land within the meaning of the Lands Clauses Consolidation Act, the only Act under which the company was authorised to sell. It may be remembered that a short time since the converse case was argued before the Master of the Rolls,—namely, whether a railway company could part with a right of way under arches over which the line was built, and his lordship refused to interfere in favour of a person who claimed such right under a guarantee from the company.

Mr. Glasse, Q.C., and Mr. Strickland appeared for the purchaser, who disputed the power of the company to make a title; Mr. Pearson, Q.C., and Mr. Samuel Roberts for the company.

His Lordship held "superfluous land" meant land which carried with the ownership of it the right to the soil to the middle of the earth, and all rights of property to the sky above. However convenient it was that the arch over the railway should be built over, no title could be made.

THE ADVERTISEMENT HOARDINGS AND THE LIMEHOUSE VESTRY.

IT incidentally transpired at the last meeting of the Limehouse Vestry that the Vestry intend to discountenance advertisement hoardings in the building of their new vestry-hall, which has just been commenced.

Mr. Whitford, the senior overseer, said the overseers and churchwardens were strong in their objections to hoardings of this character, and to the unfair evasion of their assessment, and although they could have got a good sum by letting the hoarding around the site of the new vestry-hall, they would not set a bad example, and therefore refused the offer. The question of assessing these advertisement hoardings in the parish was also discussed, in the course of which it was stated that with regard to the proceedings which had been taken the overseers found there was a difficulty, and that a similar question had been tried in another parish, and the decision of the Court of Queen's Bench was adverse.

Mr. Potto said the question was an important one, for many of the best sites in London were disfigured by these unsightly hoardings, which were let for large sums, and were a great source of profit to the owners.

The Chairman said the Metropolitan Board of Works had appreciated the difficulty, and had sought powers to rate hoardings under their new Buildings Act Amendment Bill.

UNDER THE METROPOLITAN BUILDING ACT.

A SUMMONS against the Junior United Service Club, taken out by the Metropolitan Board of Works, was heard the other day at Marlborough-street Police Court.

Mr. Napier appeared on behalf of the Board, and stated that the summons was taken out against the trustees of the Club for having erected a wrought-iron ventilating shaft from the kitchen to the roof of the building, a height of about 40 ft., and for having fixed the same against the walls in an insecure manner, so as to cause it to be a dangerous structure under the Act.

Mr. Griffiths appeared on the part of the Club, and admitted that no notice had been given to the district surveyor, nor had special application been made as required by law.

Mr. Kerr, the district surveyor, deposed that the structure was of a dangerous nature.

Some technical matters having been discussed by the magistrate and the professional gentlemen,

Mr. Newton, at the conclusion, suggested that, as the defendants had not complied with the law and were liable for penalties, the matter shou'd stand adjourned for a fortnight to give time for the necessary precautions to be carried out.

The suggestion was agreed to by all parties concerned.

MASTERS AND MEN.

Chester.—On Saturday last several hundred men employed by the Chester Hydraulic Engineering Company went out on strike. The men recently submitted to a reduction of 2s. a week from those receiving over 30s., and 1s. from those receiving 20s. and under 30s.; but last week notice was given by the managing partner of the firm of an intention to introduce rules which the men consider obnoxious, particularly in the matter of piecework. Failing to obtain a modification, the men gave a week's notice, on the expiration of which they stopped work *en masse*.

Dowlais.—A reduction in wages to the extent of 7½ to 10 per cent. has been made at Dowlais Ironworks. It will affect nearly 2,000 men.

Ashton.—The strike of bricklayers and stonemasons in Ashton and the neighbourhood is practically at an end, the masters having filled up nearly all the vacant places with workmen from other districts at the reduced wages.

Employers and Trade Unions.—The annual meeting of the London Trades' Council was held on the 5th inst., at the Rose Tavern, Old Bailey, when the yearly report of the council was read by the secretary, Mr. George Shipton. It set forth that depression in many branches of industry had been intensified and continued throughout the past year; that it was scarcely to be expected that workmen, while wanting bread for their families, could maintain the subscriptions to their societies, and it was no matter for surprise, therefore, that the number of members in the association should be less than was the case twelve months ago. It was probable that some unions, through the exceptional call upon their funds, had had great difficulty in keeping together. Yet, notwithstanding these obstacles, they had connected with the council at the close of the year fifty-five societies, forty-three distinct trades, and 16,576 members in the metropolitan districts. With regard to depression in our industries, statements in many instances had been greatly exaggerated, affording employers an excuse for lowering the wages of workpeople and to clamour for an extension of the hours of toil. This had been done by those employers whose business it was known had an increasing and exceptional demand, and who had been able to obtain almost fancy prices for their work. In plenty of cases within the council's knowledge many employers loudest in their demand for a reduction of wages paid immensely reduced rates for the raw material, but had not reduced one jot their prices for manufactured articles. In fact, many employers were making as great, and in some instances larger profits than in times of general prosperity. The effort to lower wages had over and over again been shown to be unwarrantable, and the reasons for doing so were without the least foundation. It was, therefore, the imperative duty of the industrial population to draw more closely and firmly together for mutual protection, as the prospect of labour was gloomy indeed. After re-electing Mr. Shipton as secretary for the ensuing year, the meeting unanimously passed a resolution expressing sympathy with the engineers now on strike "in resisting the employers' imposition of an unjust and unnecessary reduction of wages," and trusted that London trade societies would join the council and assist to form an effectual protection in the interests of labour.

CLOCKS AND BELLS.

Earl Stonham.—The bells in the tower of Earl Stonham Church have recently been rehung by Messrs. George Day & Son, church bellhangers, Eye, Suffolk.

Maidstone.—A clock and bell have just been placed in the tower of St. Philip's Church, Maidstone. They are the productions of Messrs. Gillett, Bland, & Co., of the Steam Clock Factory and Bell Foundry, Croydon. The clock strikes the hours upon a bell of 8 cwt. 2 qr. 17 lb., and shows the time upon three 5 ft. 6 in. skeleton iron dials, the figures and minutes being gilt. The clock is so constructed that chimes can be added at any future time.

VARIORUM.

"THE Grammar of Lithography" (Wyman & Sons) is a practical guide for the artist and printer in commercial and artistic lithography and chromo-lithography, photo-lithography, and lithographic printing. It is the work of a competent practical man, Mr. W. D. Richmond, and the information given may be depended on. In connexion with this work we may mention that there are some points wherein lithography possesses distinct advantages over photo-lithography for the purposes of the architectural draughtsman. If drawings be made upon transfer tracing-paper, as described in Chapter VII., they may be transferred with a result not much inferior to drawings direct upon stone. The draughtsman may be his own lithographer, and instead of elaborating his perspective upon Whatman paper, may do it upon the lithographic tracing-paper without waiting for the bright daylight, so necessary for the photo-lithographic process. For some work he may draw upon ordinary stout glazed writing-paper with lithographic ink, and have it transferred to stone or zinc, according to the nature of the work.—— In the new "Hand-book of the Bible," about to be published by Messrs. Longmans, the historical, chronological, and metrological parts of the work will be from the pen of Mr. Conder, whose contributions to the *Edinburgh Review*, *Fraser's Magazine*, and the *University Magazine* on subjects connected with Talmudic and Aramaic literature are well known to students of those matters. The topography, and accounts of manners and customs, are written by Lieut. Conder, R.E., the author of "Tent Work in Palestine." Complete tables of the measures and weights of Syria will be given in the work, and the architectural relics of the country will be described.—— The April number of the *Nineteenth Century* is remarkable, the writer of every article being eminent. Mr. Tennyson's poem, whatever may be the opinion of it as compared with other

works by the same hand, will sell several editions of the number. Mrs. E. I. Barrington discusses the question, "Is a great School of Art possible in the present Day?" and obligingly inclines to the opinion that it is.——The *Lancet*, speaking of the sanitary state of St. Petersburg, says:—"At a recent meeting of the municipality of St. Petersburg, the question of cleansing the city was under consideration. From the proceedings of the meeting, it would appear that the large sums devoted annually to such works of cleansing as were executed, were spent almost wholly upon the streets and open places, —to the maintenance, in fact, of a neat and orderly appearance of the city, and not upon the essentials of the removal of domestic filth. So far as the latter form of cleansing was effected, it had to be done at the cost of the householders. As a consequence, very much of the noxious matters inevitably formed in inhabited places found a way into the canals of the city, canals from which ice is collected for the preservation of provisions, and for using with drinks; the wharfs, moreover, were, in effect, open privies, from which the filth also got entrance into the canals. Now, it happens that a considerable proportion of the population of the city has no other water-supply than what is derived from these canals, which are, in fact, sewers, containing, moreover, as it would appear, somewhat strong sewage. The augmentation of sickness and mortality in the city at the approach of spring has arrested the attention of the Emperor, and it is assigned to the anxiety which has been displayed by the municipality to clear the streets of snow."

Miscellanea.

Dustmen's Perquisites: "Tots."—The case of Collins *v.* The Vestry of Paddington, tried in the Queen's Bench Division, before the Lord Chief Justice and Mr. Justice Mellor, on the 1st inst., and which may be known hereafter as the "dustman's case," raised a rather nice question as to what is included in dustmen's contracts to carry away ashes, dirt, refuse, and rubbish. The case had arisen in this way:—The plaintiff had entered into a contract with the Vestry to take all the dust, ashes, and refuse which should be collected and removed by them, within the parish for a year, which they sold to him for the sum of 6d. a cartload, and they contracted with him that they would at their expense deliver and deposit the breeze, &c., upon a brickfield of his at Shepherd's-bush. The Vestry collected the contents of the dust-bins, and it was the duty of their men to take the contents of the dustbins out of the bins, put them into carts sent by the Vestry, and then take them to the brickfield. The contents of the dustbins consist chiefly of cinders and ashes and the sweepings of the houses; but they also contain a number of articles of more or less value thrown away by the occupiers of the houses or their servants. The dust-heap accumulated in the brickfield would, at some time or other, be sifted, in order to separate the cinder, breeze, and ashes, which are used in brick-making. In the course of this process the articles in question, which in the business are known as "tots," are separated, and those of the same kind being collected together are saleable, and upon a large contract like the present are of considerable value. The articles are of a very miscellaneous kind; but among the most valuable are broken white glass, bones, articles of iron, lead, and other metals, and knife handles. Throughout the period covered by the contract the dustmen employed by the Vestry in collecting the contents of the bins were more or less in the habit of picking over the contents of the bins, of abstracting portions of the more valuable articles, of putting them into sacks of their own, and of selling the articles so abstracted for their own benefit. The contractor at the close of the year, having paid the Vestry 300*l.*, brought an action to recover from the Vestry a sum of 1,500*l.*, the alleged value of these "tots" during the same period, his case being that they were withheld from him by the dustmen of the Vestry, and that the Vestry were responsible to him for the value. The Vestry denied any such liability, and the Court gave judgment in their favour.

A Female Surveyor of Roads.—In the Buckrose Division of the East Riding of Yorkshire the magistrates have appointed Mrs. Ann Simpson as surveyor of roads for the parish of Kirby Grindalyth, on the Wolds.

The Building Trade in Edinburgh, according to the *Edinburgh Property Review*, continues in a very depressed state. "With the exception of the New Medical School, St. Mary's Cathedral, and a few other and much smaller buildings, little work is going on, and the consequence is that large numbers of men are going about idle. The mason-work at the Infirmary being nearly finished, and the erection of several tenements having been abruptly stopped for want of funds to complete them,—the banks and investment companies declining at present to make any further advances,—the immediate prospect, after a long and exceptionally severe winter, is one of the gloomiest. Stone-dressing machinery being in use at the larger works, there is not, even at the best, so great a demand for manual labour as formerly. The men are, in many cases, suffering great hardship; and an endeavour is being made to induce the executive of their trade society to vote 2,000*l.* or 3,000*l.* for the purpose of sending a thousand of them to the colonies, with the view of bettering their condition, and at the same time relieving the market of so much surplus labour. The wages of those in employment range from 6d. to 7d. an hour; but we are informed that many good workmen, to secure employment, are offering themselves under these rates. It is hoped that, with better weather, matters may soon assume a more favourable aspect."

Proposed Smithfield Flower Market.—At a meeting of the Court of Common Council, held at the Guildhall, the Lord Mayor presiding, Mr. Isaacs, chairman of the Markets Committee, stated that the ground-plans of the new fruit, flower, and vegetable market at Smithfield were ready, and those for the superstructure would be ready shortly. Mr. Lusher presented a petition from the inhabitants of the ward of Farringdon Within, asking the Court to take such immediate steps as might be necessary to carry out the provisions of the Holborn Valley Improvement Act, and to take the necessary steps for the erection of dwellings and lodging-houses for the poorer classes upon some portion of the vacant sites belonging to the Corporation. Mr. Bedford, in supporting a resolution to refer the petition to the Improvement Committee, urged that the Corporation had not erected a sufficient number of dwellings. The dwellings they now had accommodated 1,000 persons, who paid 4 per cent. on the outlay incurred in the erection of the houses, while the Corporation borrowed the money at 3½ per cent. There was, therefore, no expense to the Corporation in the matter. That was a great contrast to the proceedings in connexion with the Golden-lane scheme under the Artisans' and Labourers' Dwellings Act, where the cost to the ratepayers of removing the present houses and erecting others would average 200*l.* per head for every man, woman, and child accommodated. The motion was carried.

The Ideal Dwelling House.—The last but one of the Mayfair Drawing-room series of lectures was delivered by Mr. Ernest Turner, architect, on the 3rd inst. in the presence of H.R.H. the Princess Mary of Cambridge and a fashionable audience. The lecturer gave examples, illustrated by diagrams, of sanitary defects too commonly found. Methods of excluding sewer air from dwelling-houses without recourse to expensive patents were described. After calling attention to statistics proving the importance of the subject, and its bearing upon the well-being of the community, practical suggestions were made with regard to the improvement of the drainage, water supply, warming and lighting of existing houses. A simple method of preventing water from freezing in cisterns, by means of a branch from the expansion pipe of the hot-water cistern, was shown. The dangers to health arising from dust-bins were alluded to, and the system of collecting dust in London was condemned. The National Health Society propose organising a series of lectures to working plumbers. Suggestions should be sent to the Secretary, 44, Berners-street.

Sanitary Appliances.—The annual meeting of the British Medical Association will be held this year in the Queen's College, Cork. We understand the new plant-houses have been set apart for an exhibition of sanitary appliances and inventions of a hygienic or engineering interest, the management of which is in the hands of a special sub-committee, with Mr. W. H. Shaw, B.E., and Mr. Arthur Hill, architect, honorary secretaries.

Statue to William Tyndale.—A committee has been formed for the erection of the memorial statue to William Tyndale on the Thames Embankment in London, where a site has been granted by the Metropolitan Board of Works. The committee for this memorial proposes to raise the money in all parts of the British Isles. The total expenses will be from 3,000*l.* to 4,000*l.* As it is wished to spread the interest of the scheme over as wide an area as possible, contributions of any amount will be welcomed. The bankers are Messrs. Glyn, Mills, Currie, & Co.

M. Viollet le Duc has submitted to the Municipality of Paris a scheme for securing uniform time, which is likely to be adopted. Twelve centres will be established at mairies and churches, from which branch wires will be carried to fourteen other public buildings. The twelve centres will be connected with a clock at the Observatory. The cost of installation is estimated at 80,000 francs, and the management will be intrusted to the Telegraph Department, the annual expense being 7,500 francs.

The Holloway College, Egham.—Tenders are being prepared for Mr. Holloway's new college for ladies, to be built at Egham. The design is by Mr. W. H. Crossland, and the quantities have been taken off by Mr. C. Batstone, and are unusually elaborate, extending to nearly 1,700 pages, of which some 200 pages are explanatory sketches. The bills of quantities have been lithographed by Messrs. Sprague & Co. The competition is confined to twelve selected firms.

Church Building.—On Saturday last the first stone of a chancel for St. Swithin's Church, Lincoln, was laid by Mr. N. Clayton, of the firm of Clayton & Shuttleworth. The chancel will cost 2,500*l.*, of which Messrs. Clayton & Shuttleworth contribute 1,400*l.*

The Brighton Spring Exhibition of modern pictures in water-colours was opened to the public on Thursday, April 10th. It consists of 597 drawings.

TENDERS

For kennels, stables, &c., for the North Warwickshire Hunt:—

Lassaman	£6,750 0 0!
Stephenson	6,561 0 0
Jones & Son	6,380 0 0
Evison	5,700 0 0
Selby	5,650 0 0
Jones & Co.	5,450 0 0
Matherby	5,425 0 0
Lovatt	5,275 0 0
Barlow	5,210 0 0
Rowley & Lynex	5,100 0 0
Cresswell & Harrison	5,106 0 0
Smith	5,031 0 0
Robbins	4,987 0 0
Worwood	4,943 0 0
Bowen	4,867 0 0
Dawson & Bradwey	4,832 0 0
G. J. & J. Fox	4,816 16 9
Mills	4,694 0 0
Robinson	4,740 0 0
Trow & Sons	4,655 0 0
Widdowson	4,530 0 0
Foxon & Son	4,519 0 0
Bromage	4,433 0 0
Hartley	4,333 0 0
Cooper	3,995 0 0
E. Smith	3,959 0 0
Gascoyne (accepted)	3,863 0 0!

Accepted for Wesleyan minister's residence, Knottingley. Mr. William Watson, architect:—

Walker, Bros. (excavating, brick, and stone)	£330 18 0
Spears & Appleyard (carpenter and joiner)	215 0 0
Johnson (plumbing, glazing, iron, &c.)	80 0 0
Driver (plastering)	57 0 0
Pycock & Son (slating)	49 18 0
Naylor (painting)	17 10 0

For alterations to shop premises at Goole, for Mr. R. J. Wake. Mr. William Watson, architect:—

Tasker	£175 0 0
Gyles	165 0 0
Hunter (accepted)	151 18 5

For the erection of new schools, North End-road, Fulham, to accommodate 600 children, for the School Board for London. Mr. E. R. Robson, architect. Quantities by Mr. T. Thornton Green:—

Marsland	£5,770 0 0
Higgs & Hill	5,560 0 0
Shepherd	5,540 0 0
Jerrard	5,541 0 0
Thompson	5,377 0 0
Aitchison & Walker	5,333 0 0
Brass	5,178 0 0
Hook & Oldrey	5,177 0 0
Hobson	5,158 0 0
Wall	5,110 0 0
Tongue (accepted)	5,008 0 0

For the erection of a detached house, West-road, Eastdown Park, Lewisham. Mr. W. C. Banks, architect. Quantities supplied:—

Sharpe & Everard	£596 0 0

For the erection of new business premises, in Blagrave-street, Reading, for Mr. E. G. Oakshott. Messrs. Brown & Albury, architects:—

Strong Brothers	£3,066	0	0
Simonds	2,993	0	0
Higgs	2,995	0	0
Sheppard	2,968	0	0
Searle	2,953	0	0
Filewood (accepted)	2,794	0	0

For rebuilding 35, Bucklersbury, for Mr. W. Conolly. Mr. Robert P. Notley, architect. Quantities by Messrs. Linsdell & Giffard:—

Messom	£7,898	0	0
Greenwood	7,440	0	0
Falkner	7,257	0	0
Hart	7,068	0	0
Adamson & Sons	6,990	0	0
Scrivener & Co.	6,890	0	0
Browne & Robinson	6,834	0	0
Merrit & Ashby	6,798	0	0
Rudkin	6,798	0	0
Higgs & Hill	6,790	0	0
Perry & Co.	6,757	0	0
Brass	6,666	0	0
Prebble	6,373	0	0
Bangs & Co.	6,324	0	0

For sinking well, &c., at the New Infirmary, Nottinghill, for the Parish of St. Marylebone. Messrs. H. Saxon Snell & Son, architects:—

Eastell & Son	£4,128	0	0
Pontifex & Wood	4,013	0	0
Tilley	1,048	18	0

For supplying and fixing pumps for ditto:—

Pontifex & Wood	£761	5	0
Lambert & Sons	715	0	0
Turner & Co.	670	0	0
May Bros.	655	0	0
Stone & Co.	630	0	0
Scott & Son	610	0	0
Dale	538	0	0
Benham & Sons	491	15	0
Tilley	459	17	6
Potter & Sons	428	0	0

For the erection of new schools, at Somerford-street, Bethnal-green, to accommodate 1,600 children, for the School Board for London. Mr. E. R. Robson, architect. Quantities by Mr. T. Thornton Green:—

Boyce (accepted)	£14,395	0	0

For the erection of a house and shop at Brentford, for Dr. J. Duncan. Mr. Edward Maynard, architect. Quantities supplied:—

Carless	£873	0	0
Beauchamp	856	0	0
Sweet & Loder	839	0	0
Brunsden (accepted)	825	0	0

For semi-detached residences, St. James's Estate, Hereford, for Mr. J. B. Evans. Mr. E. H. Lingen Barker, architect:—

Coleman Bros.	£988	0	0
Bowers	950	0	0
Edwards	905	0	0
Welsh	893	0	0
Balcombe	870	0	0
Rowberry	835	0	0
Pensom	830	0	0
Sandford	815	0	0
Giles (accepted)	786	0	0

For the erection of Wesleyan Chapel, Hounslow. Mr. James Weir, architect. Quantities by Mr. C. G. Maylard:—

Dove Bros.	£2,575	0	0
Sawyer	2,444	0	0
Rider & Son	2,428	0	0
Nye	2,413	0	0
Manley	2,387	0	0
Hiscock	2,298	0	0
Hobson	2,287	0	0
Todd	2,128	0	0

For alterations and additions to Stanway Church, near Colchester, Essex:—

Poole & Sons	£3,290	0	0
Thompson	2,492	0	0
Grimwood & Son	2,079	0	0
Grimes	1,987	9	5
Saunders & Son	1,965	0	0
Dobson	1,393	0	0

For repairs to sewer outlet, Shirley, Southampton, Mr. James Lemon, C.E.:—

Bull	£368	0	0
Batten	339	15	0
Simms	337	0	0

For new road, Westwood Park Estate, Southampton, for Mr. W. Winn. Mr. James Lemon, C.E. Quantities by Mr. G. A. Smith:—

Sibsey & Co.	£1,483	0	0
Bull & Sons	1,275	0	0
Crook	1,248	0	0
Batten (accepted)	1,225	0	0

For rebuilding 9 and 10, Goldsmith-street, E.C. Messrs. Ford & Hesketh, architects:—

Perry	£3,903	0	0
Merritt & Ashby	3,905	0	0
Lawrence	3,799	0	0
Brass	3,788	0	0
Boyce	3,750	0	0
Mark	3,700	0	0
Morter	3,590	0	0
Scrivener	3,361	0	0
Crabb	3,330	0	0
Browne & Robinson	3,291	0	0
Conder (accepted)	3,119	0	0

For wine-vaults, &c., Junior Army and Navy Club. Mr. A. Bedborough, architect. Quantities supplied by Messrs. R. L. Curtis & Sons:—

Sprake & Foreman	£1,453	0	0
Colls & Son	1,321	0	0
Green & King (accepted)	1,315	0	0

For three small houses on the Guildford Park Estate, Guildford, for Mr. John Spencer. Mr. Henry Peak, architect:—

Tribe	£1,007	0	0
W. Swayne	794	10	0
Mason	718	0	0
Strudwick	713	0	0
T. Swayne (accepted)	710	0	0

For pair of small villas, St. John's, near Woking Station, Surrey, for Mr. Joseph Martyr. Mr. Henry Peak, architect:—

Clark	£870	12	6
Whitburn	777	0	0
Butt	594	10	0
Harms	550	0	0
Harris (accepted)	547	0	0

Houses and Shops at Walthamstow.—The architect of the houses and shops at Shern Hall-street, Walthamstow, for which tenders were published in last week's *Builder*, is Mr. Robert Blackmore, *not* "Black."

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All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

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